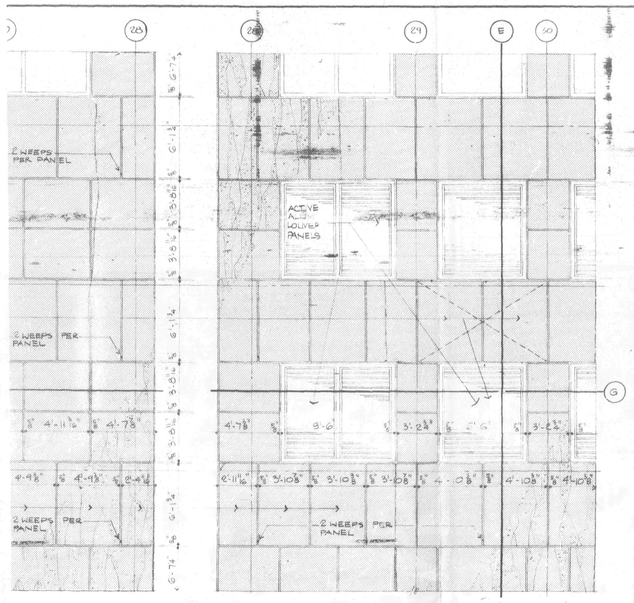
W-7004 - SALOMON BROTHERS - 7 WTC -
ELECTRICAL, HVAC AND PLUMBING
DEMOLITION: FLS. 38, 40, 42, FOLDER #2

W2-415-083-550.438

REVIEW STATUS

W-7004

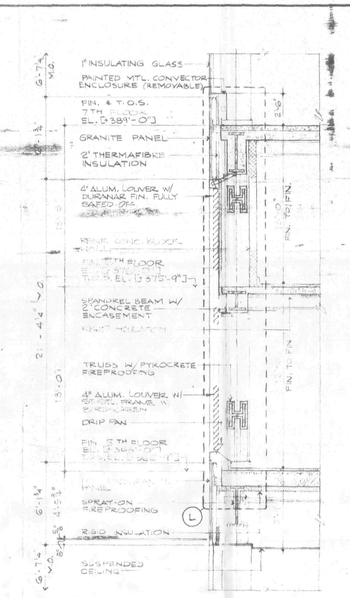
Sub-mission#	Response To #	Coordi-nator	TCRU Memo	Approval	Facility Rider	Outstanding Comments	Remarks
(5.9.89)	10	JPV	5-23-89	✓		10	• Base Bldg. (E; M;) • Mech also approved
2a (5.26.89)		JPV	6.8.89	✓		—	• Advance review on Sub. #12 Transformr vault
2 (5.26.89)	—	JPV	6-15-89	✓		12	• Vault constr. on 5th Flr. Ne • Refine Base Bldg. work / MER
3 (5.31.89)	One Memo	JPV	6-22-89	One Memo		5	• Mech. + El.
4 (6.5.89)		JPV	6-22-89				• Str. 47th Flr. MER
5 (6.5.89)	—	JPV	6-15-89	✓			• Supplemental to Sub. 12
(6.30.89)	12, 13, 14	JPV	7-14-89	✓		6	• El. service & distr. • Mech. Equip.
(9.11.89)		JPV	10-5-89	✓		12	12 new comments 12 repeat comments
3 (1.5.90)		PCC VAD	1-9.90				See memo # 18 for info. (JW)
1 (7-10-91)		DT	7/12-91	No	—	—	Re W7004-2 Reject due to unknown intended use of (BSEA) insulation
(12/10/91)	—	GLE	1/3/92	YES	—	—	Revisions to Toilet Rms FLRS 36, 37, 4



SOUTH-EAST CORNER SIMILAR)

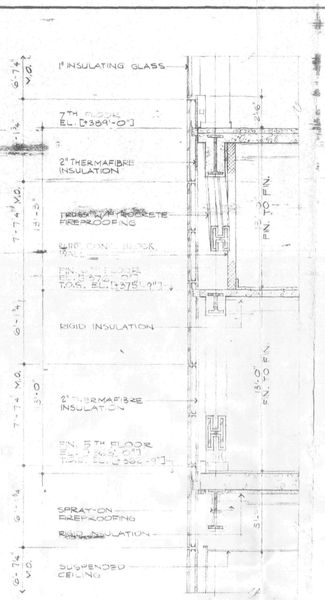
B EXTERIOR ELEVATION OF EAST FACE @ SOUTH-EAST CORNER @ FLOORS 5TH & 6TH (WEST FACE SIMILAR)

SCALE: 1/4"=1'-0"



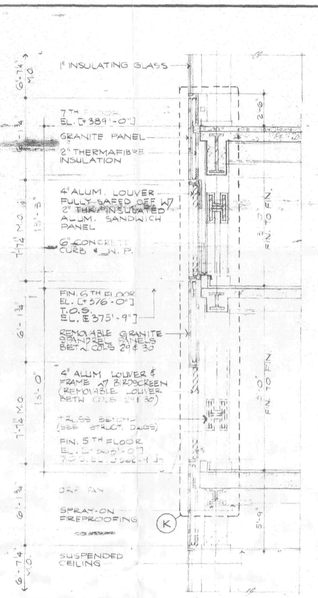
C EXTERIOR SOUTH WALL SECTION THRU GRILLE @ TRUSS FLOORS 5TH & 6TH

SCALE: 1/4"=1'-0"



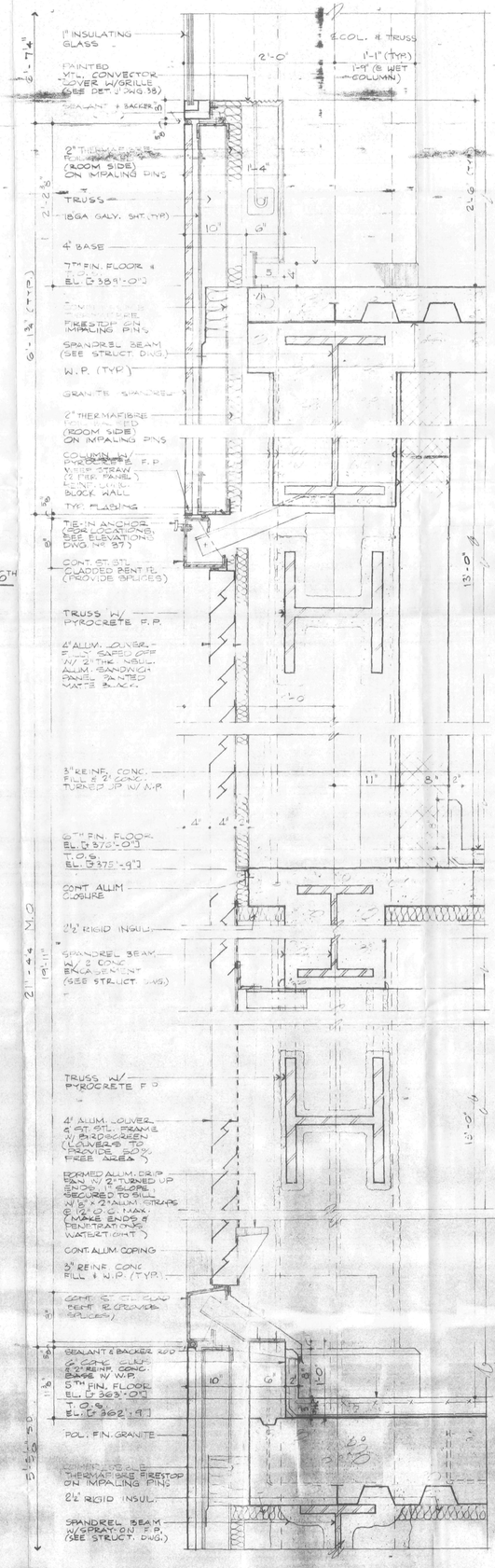
D EXTERIOR SOUTH WALL SECTION THRU PLASTER @ TRUSS FLOORS 5TH & 6TH

SCALE: 1/4"=1'-0"



E EXTERIOR EAST WALL SECTION THRU LOUVERS WINDOWS @ TRUSS FL. 5TH & 6TH

SCALE: 1/2"=1'-0" (WEST WALL SIMILAR)



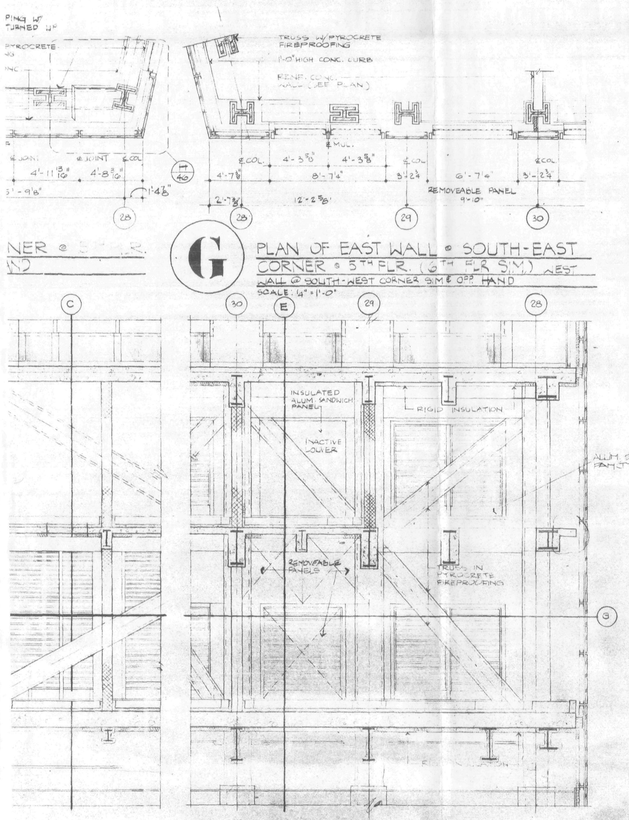
L SECTION THRU LOUVER @ 5TH & 6TH FLRS. @ SOUTH WALL BETWEEN COLS. #19 & #27

SCALE: 1½"=1'-0"

GENERAL NOTES:

1. SEPARATE ALL DISSIMILAR METALS.
2. TRUSS ENCLOSURES ARE TO BE TRUE FIRE STOPS. INTEGRITY OF ENCLOSURES TO BE MAINTAINED THROUGHOUT. NO LEAKS. AT GYP BD. DEVIATION @ GUSSET PLATE CONNECTIONS ALLOWED. ADJUST ENCLOSURE DETAIL AS REQ'D. TO ACHIEVE INTENT.
3. TRUSSES, SPANDREL BEAMS & COLUMNS W/ PYROCRETE & ANY FLOOR OR FURR AREAS EXPOSED TO OPEN AREA BEHIND LOUVER TO BE PAINTED MATTE BLACK. ALL SUPPORTING & FASTENING ELEMENTS BEHIND LOUVER TO BE PAINTED MATTE BLACK TO HAVE MIN. SIGHT LINES.
4. WEEP STRAWS (2 PER PANEL) TO BE COMPATIBLE WITH SELECTED SEALANT (SEE BASE ELEV. FOR WEEP LOCATIONS @ HEAD OF ALUM. LOUVER PC'S IF FLOOR.

Reference Dwg
NOT To Be Reviewed

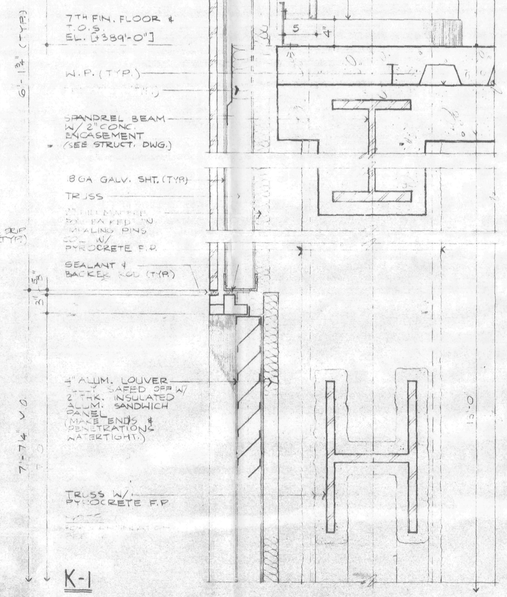


G PLAN OF EAST WALL @ SOUTH-EAST CORNER @ 5TH FLR. (6TH FLR. SIM.) WEST WALL @ SOUTH-WEST CORNER SIM. OPP. HAND

SCALE: 1/4"=1'-0"

J INTERIOR ELEVATION OF EAST FACE @ SOUTH-EAST CORNER @ 5TH & 6TH FLOORS

SCALE: 1/4"=1'-0"

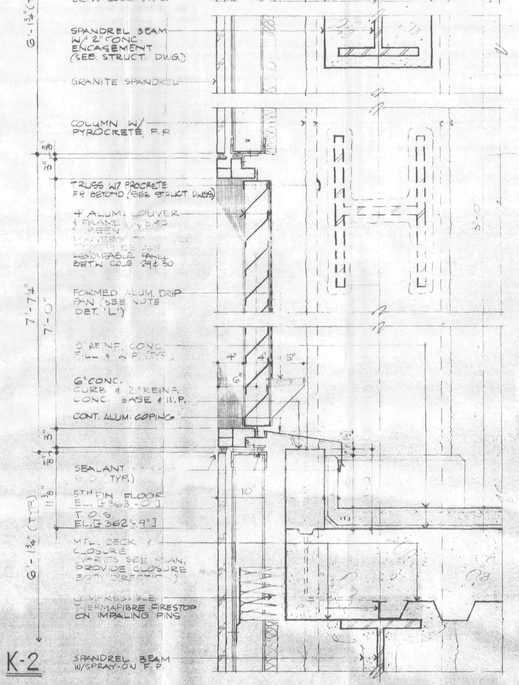


K-1

K SECTION THRU LOUVERS @ 5TH & 6TH FLOORS @ EAST WALL BET'N. COL. #29 & 30

SCALE: 1½"=1'-0"

K-2



DATE	REVISION
	CURTAIN WALL # 3

7 WORLD TRADE CENTER
47 STORY OFFICE BUILDING
BOUNDED BY
VESEY STREET AND BARCLAY STREET
WASHINGTON STREET AND WEST BROADWAY
NEW YORK NEW YORK

EMERY ROTH & SONS P.C.
ARCHITECTS
845 THIRD AVENUE NEW YORK, N.Y. 10022

THE OFFICE OF
IRWIN G. CANTOR P.C.
STRUCTURAL ENGINEERS
919 THIRD AVENUE NEW YORK, N.Y. 10022

SYSKA & HENNESSY
ENGINEERS
11 WEST 42ND STREET NEW YORK, N.Y. 10036

DATE: OCT. 20, 1986 | SCALE: AS NOTED

DWG. 49

THE PORT AUTHORITY OF N.Y. & N.J.
QUALITY ASSURANCE
ENGINEERING DEPT.
JUL 11 1991
RECEIVED

WTC 7082 Record Copy

salomon\tc

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* * *

SECTION 03350

CONCRETE FLOOR SEALER

1.01 DESCRIPTION

A. General: Provide concrete floor sealer in accordance with the Contract Documents.

1.02 QUALIFICATIONS

A. The concrete floor sealer work shall be performed by a firm having 5 years experience in the installation of materials specified herein on projects comparable to this project.

1.03 SUBMITTALS

A. Manufacturer's Data: Submit manufacturer's specifications and installation instructions for materials required. Include manufacturer's certification and laboratory test reports as may be required to show compliance with the Contract Documents.

B. Substrate Acceptability: Submit a certified statement issued by the approved manufacturer and countersigned by the applicator, attesting that all surfaces to receive concrete floor sealer have been found satisfactory for the reception of the sealer. Application of sealer will be construed as acceptance of surfaces.

1.04 PRODUCT HANDLING

A. Delivery and Storage: Deliver materials to the site in original unopened containers, clearly indicating manufacturer's name, brand name and other identifying information. Store in accordance with manufacturer's recommendations.

B. Handle materials in accordance with manufacturer's recommendations.

1.05 ENVIRONMENTAL CONDITIONS

A. Follow the manufacturer's recommendations regarding application within the permissible temperature, humidity and ventilation limitations.

1.06 PROTECTION

A. Protect surfaces not designated to receive concrete floor sealer against any defacement resulting from this work.

2.01 MATERIALS

A. Type CFS-1: Two-component epoxy resin coating; one of the following:

1. "Sonoplex" (Sonneborn-Contech).

2. "Eucopoxy II" (Euclid Chemical Co.)

B. Type CFS-2: Acrylic resin coating; one of the following:

1. "Kure-N-Seal" (Sonneborn Building Products, Rexnord Chemical Products, Inc.).

2. "Rez-Seal" (Euclid Chemical Co.).

PART 3 - EXECUTION

3.01 CONDITION OF SURFACES

A. Examine the surface condition of the substrate to receive concrete floor sealer, and the conditions under which the work is to be performed. Do not proceed with the work until unsatisfactory conditions have been corrected.

B. Prior to installation of concrete floor sealer, arrange a meeting with the manufacturer's representative, the installer and the base building concrete contractor to review material selection, installation procedures and substrate suitability.

3.02 SURFACE PREPARATION

A. Ascertain if any coatings were previously applied to concrete slabs for curing or any other purposes. Take corrective action to insure compatibility with specified sealer.

B. Test the substrates for compatibility, in the manner recommended by the sealer manufacturer.

C. Comply with manufacturer's instructions for the cleaning and preparation of substrates to receive the sealer system.

D. Provide accessory items as shown and as recommended by the sealer manufacturer.

E. Mask off adjoining surfaces not to receive concrete floor sealer, and close off floor drains.

3.03 INSTALLATION

A. Start the installation of concrete floor sealer only in the presence of the manufacturer's technical representative.

B. Comply with the manufacturer's written instructions for the installation of the concrete floor sealer.

C. Apply so as to form a continuous, uniform film thickness in two separate coats.

* * *

SECTION 05510

STEEL PAN-TYPE STAIRS

PART 1 - GENERAL

1.01 DESCRIPTION

A. General: Provide steel pan-type stairs in accordance with the Contract Documents.

B. Related Work Specified Elsewhere:

1. Cement fill for steel pan-type stairs.

1.02 STANDARDS

A. Except as modified by governing codes and by the Contract Documents, comply with the applicable provisions and recommendations of the following:

1. AWS "Structural Welding Code".

2. NAAMM "Metal Stairs Manual".

1.03 SUBMITTALS

A. Shop Drawings: Show in detail the construction, thickness of metals, jointing, methods of installation, fastening and supports, location and sizes of welds, anchoring, hangers, and all other pertinent information. Show all loads and eccentricities. Submit details drawn to scale at not less than 1-1/2 in. per ft. Shop drawings shall contain the design, type of steel and load assumption and shall bear the seal of a licensed Professional Engineer registered in New York State. Include structural calculations and load test data. Where conditions in three or more consecutive stories are exactly alike, the drawings may be broken and noted to include the duplicate runs.

B. Samples: Submit samples of materials or assemblies, as requested.

PART 2 - PRODUCTS

2.01 STEEL PAN STAIR MATERIALS

A. Structural Steel: ASTM A36.

B. Steel Sheets: ASTM A570 or A611, grade as required to meet structural requirements.

C. Steel Pipe: ASTM A53, Type E, Grade A, suitable for close coiling, black unless otherwise shown as galvanized. Use standard malleable iron fittings for steel pipe.

D. Malleable Iron Castings: ASTM A47, Grade 35018.

E. Bolts and Nuts: ASTM A307, Grade A bolts.

F. Rivets: ASTM A502.

G. Machine Screws: Federal Specifications FF-S-92.

H. Expansion Bolts: "Cinch" type, galvanized, of approved manufacture.

I. Ferrous Metal Primer: SSPC Paint No. 2.

2.04 FABRICATION

A. Provide steel pan-type stairs and platforms of the design shown on Drawings constructed to support a live load of not less than 100 lbs. psf and a concentrated load of 300 lbs. Structural steel support beams are designed for vertical load only, and do not include torsion induced by stair hangers. Provide stiffener plates, bracing or additional framing to resist torsion and to properly secure stairs to the structural elements. The installed handrails and supports shall withstand a 200 lb. load applied at any point, downward or horizontally or the simultaneous application of a lateral force of 40 plf and a vertical force of 50 plf, both applied at the top of the railing; the more stringent requirement governing.

B. Provide stringers, risers, sub-treads and platforms as shown. Form tread pan and riser in a continuous piece to receive the cement fill. Weld or bolt risers and treads to carrier angles which shall be welded or riveted to the structural steel stringers. Fasten countersunk bolts or stud welded clips through pans and platforms to fasten welded wire fabric for cement fill. Provide welded-on clips for the support of metal lath and plaster or drywall soffits.

C. On intermediate landings, provide metal bases formed of stringers of the section and gage indicated. Miter and weld corners of bases.

D. Provide railings of the design and section shown on drawings, attached to the stair stringers.

E. Countersink rivet and bolt heads and screws on finished surfaces, or cut off flush with such surfaces.

F. Properly fit and securely fasten all parts, making exposed joints close fitting. Cut, drill, punch and tap as required for installation.

G. Perform welding in accordance with Structural Welding Code. Make joints as strong and rigid as adjoining sections. Weld continuously along entire line of contact, except where spot welding is indicated. Grind exposed welds flush and smooth. Welded connections may be used in place of bolted or riveted connections.

H. Give ferrous metal surfaces a shop coat of ferrous metal primer. Before painting, thoroughly clean steel or iron surfaces of loose scale, filings, or other objectionable materials. Remove grease. Apply paint in dry weather or under cover; ensure that steel or iron surfaces are free from moisture or frost. Do not deliver materials until shop coat has dried.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Work in the field shall comply with the same requirements as specified for shop work under Part 2 - Products.

B. Except where otherwise shown or specified for a particular item of work or for built-in work, fasten metal work to solid masonry with expansion bolts. Fastenings to wood plugs in masonry will not be permitted. Drill holes to the exact diameter of the bolts. Thread screws full length to the head of the screw.

C. Provide connecting members for properly securing the work to masonry or structural framing; including bolts, rivets, screws, hangers, inserts, sleeves, anchors, expansion bolts, washers and other items as required.

D. Leave work exposed to view, including stair soffits, clean, smooth and neatly finished.

E. Include supplementary parts necessary to complete each item, though such work is not definitely shown or specified.

F. Coordinate and schedule this work with the work of other trades. Furnish anchors, fastenings and other items to be embedded in concrete or masonry, or required for securing work to other construction.

G. Provide handrail brackets of malleable iron castings, spaced as shown. Provide cast iron fillers for brackets at plastered walls.

H. Install work plumb and true to the exact lines and levels, in the correct locations and in proper relation to adjoining work.

I. Touch-up marred and abraded shop paint on exposed surfaces after erection in the field.

* * *

SECTION 07270

SPRAYED-ON FIREPROOFING

PART 1 - GENERAL

1.01 DESCRIPTION

A. General: Provide sprayed-on fireproofing in accordance with the Contract Documents.

B. Work Not Included: Field inspection and field testing.

1.02 QUALIFICATIONS

A. The sprayed-on fireproofing work shall be performed by a firm having 2 years experience in the installation of materials specified herein on projects comparable to this Project. The firm shall have the approval of the sprayed-on materials manufacturer.

B. Before proceeding with fireproofing work, obtain approvals of the proposed materials, densities and thicknesses from governing authorities.

1.03 SUBMITTALS

A. Manufacturer's Data: Submit manufacturer's specifications and installation instructions for each material required. Include manufacturer's certification and laboratory test reports as may be required to show compliance with the Contract Documents.

B. Guarantee: Submit written guarantee, signed by the Installer and Contractor agreeing to repair or replace any sprayed-on material which has cracked, flaked or peeled from the substrate due to defective materials or workmanship within a period of 2 years from the date of acceptance.

C. Test Data: Submit certified copies of laboratory tests of sprayed-on fireproofing as specified herein for the following:

1. Deflection
2. Bond Impact
3. Corrosion Resistance
4. Cohesion-Adhesion (Bond Strength)
5. Air Erosion
6. Density

1.04 PRODUCT HANDLING

A. Deliver materials to Project site in manufacturer's unopened containers, fully identified with trade name, type, grade and other identifying data, and bearing the UL label if required. Store above grade, indoors, in a dry location and protected from the weather. Discard materials which have been exposed to dampness before use.

1.05 ENVIRONMENTAL CONDITIONS

A. Do not apply sprayed-on materials when ambient temperature is below 40 deg. F., or to substrates which are below temperatures of 40 deg. F. Maintain optimum relative humidity to assure proper drying of the applied material.

B. Maintain a minimum temperature of 40 deg. F. during spraying of material and until completed installation has dried thoroughly.

1.06 PROTECTION

A. Conduct spraying operations in a manner which protects persons in the vicinity against exposure to spray-on materials by complying with the latest rules and regulations of governing local, state and federal agencies.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Fireproofing Materials

1. Provide materials which have been tested under ASTM E119 and approved by Underwriters' Laboratories, Inc., and are tested under their Label Service, and in addition are approved by the local building department having jurisdiction.

B. Sprayed-On Materials: Factory-compounded self-adhesive type (without the use of organic adhesive on the substrate) factory mixed cementitious material with aggregate, free of asbestos fibers, and complying with the following minimum requirements:

1. Deflection: Material shall not crack or delaminate from the backing to which it is applied, when tested in accordance with ASTM E759.

2. Bond Impact Test: Test specimen shall not crack, spall or delaminate the material from the surface to which it is applied, when tested in accordance with ASTM E760.

3. Corrosion Resistance: Material shall show no evidence of corrosion of unpainted steel when tested in accordance with ASTM E937.

4. Cohesion-Adhesion (Bond Strength): Minimum bond strength shall be 100 psf for fibrous material, 300 psf for cementitious material when applied over uncoated, shop coated and galvanized steel and tested in accordance with ASTM E736.

5. Air Erosion: Material loss from sifting, flaking or dusting shall not exhibit a weight loss exceeding 0.025 gms/sq. ft. when tested in accordance with ASTM E859.

6. Density: As required to meet the requirements of Paragraphs 2.01 A and 2.01 B specified herein, but in no case less than a minimum dry density of 15 pcf. Determine density in accordance with ASTM E605 by drying a sample at 120 deg. F. at not less than 50% R.H. until constant weight is attained.

C. Water: Clean, fresh, suitable for domestic comsumption; free of substances which have a deleterious effect on the fireproofing material.

D. Sealer: As recommended by the manufacturer of the fireproofing; fungus resistant; flame spread 25 or less as per ASTM E84.

PART 3 - EXECUTION

3.01 PREPARATION

A. Clean substrate and remove coatings and other substances which might interfere with bond of fireproofing.

3.02 INSTALLATION

A. Manufacturer's Instructions: Comply with manufacturer's instructions for the type of material and condition of substrate in each case. Consult with manufacturer's technical representative at the Project site to determine proper procedure for conditions not fully covered by printed instructions. Record in writing any oral instructions received, with copy to Owner's Representative and manufacturer.

B. Thickness and Density: Provide fireproofing thickness and density as may be required to fulfill the fire rating shown, or as required by governing authorities for the application shown.

1. Thickness Tolerance: Comply with UL approved tolerances.

2. Density Tolerance: No material shall have a density less than 5% below the required density.

C. Apply sprayed-on fireproofing to meet requirements of the Insurance Service Office having jurisdiction at the Project site to avoid any rate penalty. Correct any application which would subject the Owner to a rate penalty.

D. Use spray equipment of the type recommended by the fireproofing manufacturer.

E. Extend material full thickness over entire substrate to be covered, in a monolithic blanket of uniform texture.

F. Where required by the manufacturer to comply with governing authorities or UL requirements, tamp the surface of freshly sprayed fireproofing to provide a medium smooth texture of the required thickness.

3.03 CLEANING

A. Immediately after completion of work in each room or space, clean the adjoining surfaces of over-sprayed material and fall-out from the spraying operation.

3.04 FIELD QUALITY CONTROL

A. The Owner will engage an independent testing laboratory to sample and verify the thickness and density of sprayed-on fireproofing in accordance with ASTM E605 and to verify Cohesion-Adhesion (Bond Strength) in accordance with ASTM E736, and authorities having jursidiction.

B. Inspections and tests shall be made as the work progresses, and shall include the following:

1. Visual inspection of substrates before application of sprayed-on fireproofing to ascertain that preparation has been performed in accordance with the Contract Documents.

2. Thickness Test

   a. Steel Decking: Four random tests for every structural bay.

   b. Beams and Columns: One test for beams and one test for columns for 25% of the members per floor, selected at random.

3. Density Test: One test each for a column, a beam and steel decking for each 10,000 sq. ft. of floor area, selected at random.

4. Cohesion-Adhesion (Bond Strength): One test for beams and one test for steel decking for each 10,000 sq. ft. of floor area.

5. Visual inspection of completed work, including patched areas. No cracks which expose the substrate will be accepted.

6. Final inspection after other trades have completed Work in contact with fire protection material, but before sprayed-on fireproofing is covered.

C. In addition to the reports required by ASTM E605 and ASTM E736, submit a statement that the sprayed-on fireproofing has been tested and complies with the Contract Documents.

3.05 REPAIR

A. Following field quality control testing, provide all repair as required to ensure compliance with the Contract Documents.

B. Respray all areas where field testing shows non-compliance. Where density is less than the tolerance allowed, increase the thickness to provide the hourly ratings required. Where thickness is insufficient, respray to increase thickness to provide the hourly ratings required.

* * *

SECTION 07270

GUARANTEE

TO

OWNER: _____

PROJECT: _____

ARCHITECT: Skidmore, Owings & Merrill

REFERENCE: Technical Specification Section 07270, Sprayed-On Fireproofing.

TIME: Period of Guarantee: 2 Years.
Starting Date: _____

GUARANTEE: In accordance with the provisions of the Contract Documents, the undersigned hereby guarantee the sprayed-on fireproofing against cracking, flaking or peeling from the substrate resulting from defects of materials or workmanship; and further the undersigned agree that upon notification of such defects within the guarantee period, to make the necessary repairs and replacements at the convenience of the Owner.

CONTRACTOR: _____ Date: _____

by: _____ _____
(signed) (printed)

SUBCONTRACTOR: _____ Date: _____

by: _____ _____
(signed) (printed)

SECTION 09250

GYPSUM DRYWALL

PART 1 - GENERAL

1.01 DESCRIPTION

A. General: Provide gypsum drywall in accordance with the Contract Documents.

1.02 REQUIREMENTS OF REGULATORY AGENCIES

A. Wherever a fire resistance classification is shown involving drywall (3-hr., 2-hr. and similar designations), provide materials, accessories and application procedures which have been listed by UL or tested according to ASTM E119 to achieve the rating required.

1.03 PERFORMANCE REQUIREMENTS

A. Design and install gypsum drywall components so that the completed partition will withstand a minimum inward and outward pressure of 5 psf normal to the plane of the wall.

B. In areas where top of partitions are dependent on ceiling system for lateral support, coordinate design and installation to comply with Paragraph 1.03.A.

C. Design and install elevator gypsum shaftwall enclosure components so that the completed system will withstand the minimum inward and outward pressure recommended by the elevator manufacturer, but in no case less than 10 psf.

D. Deflection of shaftwall system shall be limited to 1/240 of the span in height.

1.04 SUBMITTALS

A. Manufacturer's Data: Submit manufacturer's technical data for each component of gypsum drywall system, including all related accessories.

B. Shop Drawings: Submit detailed shop drawings as follows:

1. Details of all unusual conditions in connection with gypsum drywall construction.

2. Proposed locations of control joints that are required but not shown.

3. Locations of access doors occurring in gypsum drywall construction.

4. Details of attachment to primary ceiling supports.

5. Details of rated assemblies with copies of their respective approvals.

C. Samples: Submit the following samples:

1. 6 in. long sample of each type of metal trim and control joints.

1.05 PRODUCT HANDLING

A. Delivery: Deliver materials to project site in manufacturer's unopened bundles and containers with manufacturer's name, brand, type and grade clearly indicated thereon.

B. Material Protection: Avoid exposure of material to the weather by using protective covers. Handle materials to avoid damage.

C. Storage: Store materials above grade in a dry, ventilated space, under cover and in accordance with manufacturer's instructions. Protect from soiling or damage.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General: Provide drywall materials, including accessories and fasteners produced by one manufacturer, or, when products of more than one manufacturer are used in a system, they must be mutually acceptable to the primary materials manufacturers. Products specified herein by proprietary designation are as manufactured by U.S. Gypsum Company and establish the quality standards required. Equivalent products of other manufacturers will be considered provided they meet those established standards.

B. Gypsum Wallboard: 5/8 in. thick, unless otherwise shown. Where fire resistive ratings are shown use "Type X", of thickness required. Comply with following requirements:

1. Face Layer: ASTM C36, with tapered edges.

2. Base Layer: ASTM C36.

3. Core Board: ASTM C442, 1 in. thick.

4. Water Resistant: ASTM C630.

5. Liner Board: "USG Gypsum Liner Panel", 1 in. thick.

C. Fasteners

1. For securing to concrete or masonry use hardened steel concrete stub nails of sufficient length to provide permanent fastening.

2. For all other applications involving gypsum drywall comply with wallboard manufacturer's printed recommendations.

D. Joint Treatment Materials: Joint compound, joint tape and finishing compound; ASTM C475.

E. Laminating Adhesive: "Durabond Joint Compound - Multi-Purpose".

H. Sealants

1. Acoustical: "USG Acoustical Sealant".

2. Water Resistant: "Sheetrock Brand W/R Sealant".

I. Trim Accessories

1. Corner Reinforcement: "Dur-A-Bead 103" galvanized. Install in one piece when manufactured in length required.

2. Metal Trim: Galvanized steel, the following types:

a. "No. 200-A", channel type, sized for 1/2 in. or 5/8 in. wallboard.

b. "No. 200-B or 200-C", angle type, sized for 1/2 in. or 5/8 in. wallboard.

c. "No. 400 Series" channel type.

3. Control Joint: "No. 093", roll-formed zinc.

4. Aluminum Trim: Extruded or formed aluminum trim with 1/4 in. dia. holes in fins for attachment to drywall, staggered 1/2 o.c.; longest lengths available; primed for finish painting; provide one of the following for each type specified:

a. Jamb Reveal: "STR-050-050" (Pittcon Industries) or "ER/0.5W-0.5D" (Construction Specialties, Inc.).

b. Channel Wall Reveal: "SWR-050-050" (Pittcon Industries) or "WR/0.5W-0.5D" (Construction Specialties, Inc.).

J. Structural Accessories

1. Runners: ASTM C645, roll formed galvanized steel, channel or angle shape, type, size and gage as recommended by the drywall manufacturer for the wall system indicated.

2. Metal Studs: ASTM C645 roll-formed galvanized steel, size and gage as recommended by the drywall manufacturer for the wall system and height indicated; the following types:

   a. "ST" and "CWS", for interior partitions, ceilings and column fireproofing.

   b. Steel "C-H Stud" or "E-Stud" for cavity shaftwall construction.

3. Furring Channels: "Rigid Furring Channel"; ASTM C645, roll-formed galvanized steel, flanged channel type, 7/8 in. deep; for wall furring and ceiling attachment.

4. Sheet Metal Grounds: 20 gage galvanized sheet metal; where shown or required for attachment of other work; size as required for each individual item.

K. Ties: Comply with the requirements of Underwriters' Laboratories, Inc., and the wallboard manufacturer for the following types:

1. ASTM C754, 18 gage tie wire.

2. 1/2 in. x 0.015 in. steel strapping.

L. Acoustical Insulation (Partitions): "Thermafiber Sound Attenuation Blanket", 1-1/2 in. thick unless otherwise shown.

M. Acoustical Insulation (Ceilings): "Thermafiber Regular Blanket", 2-5/8 in. thick unless otherwise shown.

N. Water: Clean and free of deleterious material.

O. Primary Suspension Members for Ceilings

1. General: Size and provide ceiling support components to comply with ASTM C754 and with Referenced Standard 6-16 of the NYC Building Code.

2. Steel Angle Hanger Inserts: ASTM A36. Provide 4 in. x 3 in. x 3/16 in. steel angles with 7/16 in. holes drilled on center line and both ends, designed to develop the full strength of hangers and to permit anchor bolt attachment to existing slab.

3. Hanger Anchorage Devices: Screws, clips, bolts or other devices applicable to the indicated method of structural anchorage for ceiling hangers. Provide anchorage devices sized for three (3) times the calculated load supported.

4. Hangers: Galvanized, 3/16 in. x 1 in. steel straps or 1/4 in. diameter rods.

5. Carrying Channels: ASTM C754, cold rolled steel channels, 1-1/2 in., 475 lbs. per 1000 linear ft.

P. Shaft Wall: Components as required to provide fireproof assemblies for the hourly rating shown or required and complying with UL listing.

2.02 MIXES

A. Mix joint compound in the proportions recommended by the approved wallboard manufacturer. Retempering of mix will not be permitted, nor will the use of partially set joint compound be permitted. Allow complete breakdown of binder before use. Mix in batches that can be used within period of recommended pot life of compound.

PART 3 - EXECUTION

3.01 CONDITION OF SURFACES

A. Examine the substrates and adjoining construction and the conditions under which the work is to be installed. Do not proceed with the Work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. General Requirements

1. Install gypsum wallboard and accessories in accordance with ASTM C840, unless otherwise shown or specified.

2. Install metal stud components in accordance with ASTM C754, unless otherwise shown or specified. Space metal studs maximum of 16 in. o.c., unless otherwise shown. At door frames install special studs, as recommended by wallboard manufacturer.

3. Provide additional framing, reinforcing and blocking as required to support wallboard at openings and cutouts and to support built-in anchorage and attachment devices for other work.

4. Butt wallboard joints loosely together. Do not place butt ends against recessed or tapered edges. Allow a maximum gap of 1/4 in. at end joints.

5. Install maximum practical lengths of wallboard to span walls with minimum number of end butt joints. Where butt joints are necessary, stagger joints and locate as far as possible from center of walls.

6. Support end joints on framing members.

7. Do not align end joints with edges of openings.

8. Install control joints as shown and in areas as recommended by drywall manufacturer. Obtain Architect's approval for all locations. In fire rated partitions, install control joints in accordance with manufacturer's recommendations and so as not to compromise specified ratings.

9. Install metal trim at exposed edges, frames, and other locations as shown. Fasten trim securely.

10. Spot grout door frames at quarter points and jamb anchors. Use joint compound and apply before inserting face layer into frame.

11. Cut openings in wallboard for electrical outlets, piping and other penetrations. Maintain close tolerances so that edges will be covered by plates and escutcheons. Cut both face and back paper. Do not install electrical outlets back to back on opposing sides of partitions.

13. Install fasteners not less than 3/8 in. from ends or edges of wallboard sheets, spacing fasteners opposite each other on adjacent ends or edges.

14. Begin fastening from center of wallboard and proceed toward edges and corners.

15. Apply pressure on surface of wallboard adjacent to fasteners being driven to ensure that wallboard will be secured tightly to supporting members.

16. Drive fastener with shank perpendicular to face of board.

17. Drive screws with a power screwdriver as recommended by wallboard manufacturer. Set heads of screws slightly below surface of paper without cutting paper.

B. Single Layer Application

1. Walls: Apply wallboard on walls horizontally for ceiling heights less than 8 ft. 1 in. Where ceiling heights are over 8 ft. 1 in. or wall is 4 ft. wide or less apply wallboard vertically. Where horizontal application is used on walls, apply top panel first and butt tight to ceiling. Where vertical application is used apply wallboard from ceiling to floor by single length of wallboard. Hold joints back at least 8 in. from corners of door frames. Space nails not more than 8 in. o.c., and space screws not more than 16 in. o.c.

C. Double Layer Application

1. Base Layer: Apply on walls vertically with long joints on framing members. Space nails not more than 8 in. o.c., and space screws not more than 16 in. o.c.

2. Face Layer: Laminate face layer to base layer with laminating adhesive, with joints on surface spaced 10 in. from the parallel joints in the base layer. Cut and fit boards before applying adhesive. For fire-rated construction provide screw attachment or apply adhesive uniformly over entire back surface to comply with UL listing for the rating shown. For non-rated construction apply adhesive in 3/8 in. x 1/2 in. beads and support as recommended by the wallboard manufacturer until proper bond is developed. Remove temporary bracing and supports.

D. Sound Controlled Partitions

1. Provide the combination of wallboards and framing as shown. Apply acoustical sealant in beads under wallboard each side of partitions at perimeters and at intersections. Size and place beads as recommended by the sealant manufacturer to ensure the STC rating of the wall system. Provide acoustical sealant beads in back of control joints, around outlet boxes, and at perimeter of all cutouts to completely seal all openings and joints.

2. Install acoustical insulation where shown. Form continuous layer for full height of partition and tightly abutting web of studs. Fit carefully behind electrical outlets and other penetrations. Attach to back face of wallboard in accordance with manufacturer's instructions.

E. Water Resistant Drywall

1. Use as a substrate for ceramic tile and elsewhere as shown.

2. Pre-cut panels to required size and make necessary cut-outs. Apply water resistant sealant to all cut or exposed panel edges before installation. Maintain factory made paper edge at bottom of panels.

3. In areas to receive ceramic tile finish, treat all joints, penetrations and fastener heads with water resistant sealant and omit joint treatment.

4. In areas to receive other than ceramic tile finish, apply joint treatment to joints and fastener heads.

F. Ceilings

1. Provide hangers and inserts necessary to support suspended ceilings below concrete slab before concrete is cast and in time to avoid delay in work. Give particular attention to the correct location and alignment of hangers and inserts. Frame openings with furring strips so that recessed items finish flush, unless shown.

2. Provide sufficient hangers for runner channels on each side of light fixtures, ceiling diffusers and grilles, access panels and other items penetrating the ceiling.

3. Where ductwork or other members are encountered in hung ceiling space, provide trapezes or other carriers of size adequate to span such members and support ceiling framing.

4. Secure furring channels to primary carrying channels by clips or wire ties. Space furring channels on centers recommended by wallboard manufacturer.

5. Fasten wallboard with screws to furring channels on 12 in. o.c.

G. Chases

1. Align two parallel rows of floor and ceiling runners and secure as hereinbefore specified for partitions.

2. Position metal studs vertically in runners, 16 in. o.c. and secure to runners with screws.

3. Brace studs with 2-1/2 in. metal studs installed horizontally at 48 in. o.c.

4. Install wallboard as hereinbefore specified for partitions.

L. Shaft Wall: Provide "Cavity Shaft Wall" or as shown consisting of metal runners, studs, gypsum wallboard and fasteners erected and applied in accordance with the wallboard manufacturer's printed instructions. Provide fireproof assemblies for the hourly rating shown or required and complying with UL listing.

M. General Finishing Requirements

1. Finish gypsum drywall in accordance with ASTM C840, unless otherwise specified.

2. Fill openings around cutouts with acoustical sealant as recommended by manufacturer.

3. Except where water resistant wallboard is used, reinforce all joints at tapered edges and interior corners with joint reinforcing tape set in joint compound.

N. Installation of Metal Trim: Install metal trim and accessories in accordance with manufacturer's written instructions and recommendations.

3.03 FIELD QUALITY CONTROL

A. Tolerances

1. Finish surfaces within 1/4 in. in 8 ft. for plumb, level, warp and bow.

2. Finish surfaces within 1/16 in. between planes of board faces.

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ALTERATION APPLICATION

SECTION 03300

CAST-IN-PLACE CONCRETE AND CEMENT WORK

PART 1 - GENERAL

1.01 DESCRIPTION

A. General: Provide structural steel in accordance with the Contract Documents.

B. Description of Work: All labor, materials, equipment and accessories necessary for or incidental to the completion of all concrete superstructure and cement superstructure work, and related items as shown on the drawings, as specified herein, and as required by conditions at the site, including but not limited to the following:

1. Reinforced concrete frames, including columns, spandrel beams, girders, floor and roof slabs, concrete fill and all other concrete work of the superstructure, upward from foundation lines of demarcation as established on the Structural Drawings and including support for house tanks and house tank enclosures and all other concrete work of the superstructure.

2. Concreting fills as required.

3. Concreting curbs for roof fans and scuttles, etc.

4. Furnishing and installing expansion joint filler where shown on drawings.

5. Cement floor finishes and dowels required for the work included herein, including mechanical equipment pads, bases and curbs.

6. Surface finishing of all exposed concrete work. Ground surface finishing on exposed concrete ceilings, beams and columns except in unfinished areas or where applied finish is noted on the Architectural Drawings.

7. Setting and grouting of all anchors, hanger supports, ties, blocking, bolts, sockets, sleeves, etc., built into concrete work except inserts specified to be installed under Mechanical Sections. Also furnishing of nailing strips, inserts

and anchors as hereinafter specified in this Section.

8. Grouting of elevator door sills, buffer channel, window frames.

9. Setting and grouting in frames for smoke hole gratings.

10. Grouting and setting of base plates for structural steel.

11. Cooperation in setting and solidly embedded pit frames and floor drains and similar items furnished under other Sections.

12. Setting of sleeves in roof slabs.

13. Providing bases, curbs and supports for all mechanical equipment. Coordinating with mechanical trades.

14. Providing boxed openings in concrete slabs for pipes and ducts where required and fill unused portion of pipe openings after installation.

15. Dustproofing interior concrete slabs which are to remain exposed with no other finish.

16. Furnishing and installing toggle inserts for hung ceilings in the locations where directed.

17. Temporary bracing as required in connection with work of this section.

18. All other labor and materials which may reasonably be inferred as needed to make the work of this section complete.

C. Related work specified elsewhere:

1. Structural Steel - Section 05100.

2. Metal Decking - Section 05300.

3. Concrete Floor Sealer - Section 03550.

1.02 APPLICABLE CODES AND STANDARDS

A. General: All work shall be done in accordance with all applicable codes and regulations having jurisdiction. Unless specifically specified otherwise herein or by local ordinance, all work shall be done in accordance with the following codes, standards and specifications,

and such requirements shall be binding as if specified directly herein. Only the latest editions (at bid date) of the following codes, standards and specifications shall form part of this Specification to the extent indicated by the reference thereto.

1. New York City Building Code.

2. American Concrete Institute (ACI):

   ACI - 211 "Recommended Practice for Selecting Proportions for Concrete."

   ACI - 214 "Recommended Practice for Evaluation of Compression Test Results of Field Concrete."

   ACI - 301 "Specifications for Structural Concrete for Buildings."

   ACI - 304 "Recommended Practice for Measuring, Mixing and Placing Concrete."

   ACI - 305 "Recommended Practice for Hot Weather Concreting."

   ACI - 306 "Recommended Practice for Cold Weather Concreting."

   ACI - 309 "Consolidation of Concrete."

   ACI - 311 "Recommended Practice for Concrete Inspection."

   ACI - 315 "Manual of Standard Practice for Detailing Reinforced Concrete Construction."

   ACI - 318 "Building Code Requirements for Reinforced Concrete."

   ACI - 347 "Recommended Practice for Concrete Formwork."

3. Concrete Reinforcing Steel Institute (CRSI):

   CRSI - 63 "Recommended Practice for Placing Reinforcing Bars."

   CRSI - 65 "Recommended Practice for Placing Bar Supports, Specifications and Nomenclature."

4. National Ready Mix Concrete Association (NRMCA):

   "Concrete Plant Standards" and "Truck Mixer and Agitator Standards."

5. American Welding Society (AWS):

AWS D1.4 "Recommended Practice for Welding Reinforcing Steel, Metal Inserts and Connections in Reinforced Concrete Construction."

6. Wire Reinforcement Institute (WRI):

"Manual of Standard Practice."

7. American Society for Testing and Materials (ASTM):

ASTM A185 "Standard Specification for Welded Steel Wire Fabric for Concrete Reinforcement."

ASTM A615 "Standard Specification for Deformed and Plain Billet Steel Bars for Concrete Reinforcement."

ASTM C31 "Standard Method of Making and Curing Concrete Test Specimens in the Field."

ASTM C33 "Standard Specification for Concrete Aggregate."

ASTM C39 "Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens."

ASTM C42 "Standard Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete."

ASTM C94 "Standard Specification for Ready-Mix Concrete."

ASTM C138 "Test of Unit Weight Yield and Air Content (Gravimetric) of Concrete."

ASTM C150 "Standard Specification for Portland Cement."

ASTM C172 "Standard Method of Sampling Fresh Concrete."

ASTM C192 "Standard Method of Making and Curing Concrete Test Specimens in the Laboratory."

ASTM C330 "Standard Specification for Lightweight Aggregates for Structural Concrete."

B. Conflicts: The Contractor shall conform to the requirements of above standards unless specified otherwise hereinbelow. In case of apparent conflict between standards or between standards and the

specifications hereinbelow, the more restrictive requirement shall control.

1.03 SUBMITTALS

A. Details shall be carried out in accordance with the New York City Building Code and where no requirements are set forth in the Code, with ACI rules and as shown on the Drawings.

B. Regardless of any details or instructions shown on the drawings or called for in these Specifications, the Contractor will be required to comply with all regulations, rules, requirements and specifications of the New York City Building Code and shall thoroughly familiarize himself with them.

C. Shop Drawings:

1. The Contractor shall submit for approval of the Engineer of Record shop drawings, including slabs, beams, columns, showing reinforcement and all necessary bending diagrams and reinforcing steel list, and construction joint locations, curbs, depressions, sleeves and openings.

2. Shop drawings shall be prepared and submitted in accordance with requirements of "Conditions." Dimensions, bar schedules and bending details shall be shown. Reinforced concrete walls shall be shown in scale elevation (scale at least one quarter inch to one foot). Two prints and one transparency (sepia) shall be submitted for each submission. Details shall be in accordance with ACI rules. Reinforcing for flat slabs shall have top steel and bottom steel on separate Drawings.

3. The Contractor shall submit to the Architect shop drawings of all formwork for concrete surfaces which are to remain exposed in the finished work.

4. The Engineer of Record shall within reasonable time either accept the drawings or return them for revision. Drawings marked "Approved as Noted" can be released to the field and must be resubmitted for record. "Rejected" or "Revised and Resubmit" drawings must be resubmitted and cannot be released to the field.

5. The Contractor shall keep a set of shop drawings with the Engineer of Record's acceptance stamp on the job site at all times.

6. The Engineer of Record's acceptance stamp shall not relieve the Contractor of responsibility for any error or for furnishing material of the proper size, quantity or quality.

D. Mill Test Certificates: With each shipment of these materials, the Contractor shall submit mill test certificates for the cement and for the steel reinforcement and welded wire fabric.

E. Samples: The Contractor shall submit samples of the following:

1. Premolded Expansion Joint Filler.

2. Vapor Barrier.

3. Slide Bearings.

4. Aggregate for Non-Slip Surfaces.

5. Panels of form work. The Contractor's Engineer, Engineer of Record, and Owner's Inspector shall examine the panels with regard to the Architectural considerations to be obtained, and select samples of boards to be used.

6. Cement and other Concrete Materials: Samples shall be of the same brand, type and source, and aggregate samples shall be of the same source, grading, and mineral composition as the materials to be used in actual construction.

F. Deviations: Should the Contractor desire, a deviation from the drawings or specifications, or both, he shall call the specific deviation to the Architect's attention in writing prior to the submittal of shop drawings showing the subject deviation. Requests for deviations shall be submitted on the Contractor's letterhead. Deviations not identified, or identified only in letters of transmittal or in shop drawings or both, without the required written description on the Contractor's letterhead may not be accepted and shall be sufficient cause for the Architect to return each shop drawing including such deviations, rejected, without further action. Acceptance of shop drawings including deviations not detected by the Architect during shop drawing review shall not relieve the Contractor from responsibility to conform strictly to the Contract documents. Deviations will be allowed only where permitted by the Architect in writing.

1.04 JOB CONDITIONS

A. The Contractor, before commencing work, shall examine all adjoining work on which this work is in any way dependent for proper installation and perfect workmanship according to the extent of this specification, and shall report to the Construction Manager any conditions which prevent this Contractor from performing first-class work; no "waiver of responsibility" for defective adjoining work will be considered unless notice has been filed by the Contractor and acceded to in writing by the Construction Manager before this Contractor begins any part of this work.

B. The Contractor shall supply a competent engineer or surveyor to establish all lines and levels necessary to the proper locating, laying out and erecting his work.

1.05 QUALITY ASSURANCE

A. Procedures of Work: The Contractor shall keep himself constantly informed as to the progress of the work in the field, and have his materials and men ready to start work immediately when conditions of preceding work are available or ready; wholly or in part, so as not to delay the progress of building work or to interfere with the progress of work of other Contractors, in any event he shall, within 24 hours after notice from the Construction Manager to proceed with such work as directed to maintain the uninterrupted progress of the work.

1.06 QUALITY CONTROL

A. Testing of Concrete Materials:

1. Sand shall be tested for the requirements herein before specified.

2. Colorimetric tests, sieve analysis, sediment tests, comparative tensile tests shall be made at the start of the job. Additional tests may be required by the Engineer of Record if the source of supply of material is changed. These additional tests (if required) shall be made at the Contractor's expense.

3. Coarse aggregate shall be tested for requirements hereinafter specified. If, after approval, the character of the material changes, it shall be subjected to further tests for approval or rejection. If, after trial, it is found that partly

developed quarries, ledges, pits, banks or other sources of supply do not furnish a uniform product or, if for any reason the product from any source, at any time, proves to be unsatisfactory to the Owner's Inspector, the Contractor shall furnish acceptable material from other sources of supply, at no additional cost to the Owner. Samples and tests shall be taken and made on each 200 tons of fine aggregate to be used in the work, all in accordance with the ASTM Standards herein specified and before each allotment is used in the work.

4. All tests required under this Section will be made at a laboratory approved by the Engineer of Record, and the cost of any inspection and test so required will be paid for by the Owner.

B. Concrete Tests:

1. The Owner's Inspector and the Engineer of Record shall have the right to order the making of load tests and compression tests on specimen taken from the concrete work, in place of any other tests during the course of construction. If these tests do not meet specifications, concrete work shall be removed and replaced without cost to the Owner.

2. The Contractor shall be responsible for additional architectural and engineering fees on any additional work required, when original field tests made in accordance with the Building Code have failed.

3. The Owner shall engage the services of a licensed professional engineer (Owner's Inspector), to observe the testing of materials, to observe the construction of all structural concrete work and to file with and obtain all necessary approvals of the Department of Buildings and all other agencies having jurisdiction in accordance with applicable provisions of the Administrative Code of the New York City Building Department and the Specifications.

C. Controlled Concrete - Tests and Supervision:

1. Concrete unless otherwise specified, shall be controlled concrete.

2. Preliminary tests for the purpose of determining concrete mixes, in accordance with Chapter 4 of the ACI Building Code, and tests of cement and other concrete materials will be made at a laboratory approved by the Engineer of Record. The

Contractor shall have his representative present when preliminary tests are made. It shall be the responsibility of the Contractor to satisfy himself that concrete mixes, based on the results of the preliminary tests, will produce concrete strengths as required by the Contract.

3. Cement and other concrete materials will be given preliminary tests. Approval of concrete materials will be conditional on acceptable results of preliminary tests and approval of preliminary test results by the Department of Buildings.

4. A representative of the supplier in addition to that of the testing laboratory, shall supervise at the start of concrete operations the batching at the plant and the placing of concrete at the site in accordance with his instructions and to the satisfaction of the Engineer of Record.

5. The ultimate strength of concrete shall be as specified on the Structural Drawings.

6. From results of the preliminary tests, a smooth curve shall be drawn through the average position of points plotted, using the 28 day strengths of the test cylinders as ordinates and corresponding water-cement ratios as abscissas. The maximum ratio of water to cement shall include at least four different water cement ratios and at least four specimens for each water cement ratio. The water cement ratio to be used in the structure shall correspond to a point on the curve established by these tests representing a strength of concrete 25% higher than the minimum ultimate strengths called for on the plans. However, if the producer demonstrates to the satisfaction of the Engineer of Record or Owner's Inspector, on the basis of job performance records of the coefficient of variation (described in reference standard RS-10-14NYC) that the quality control exercised in the producer's plant warrants a change in the 25% factor, the change may be permitted. In no case, however, shall the concrete used in the work be produced using a water-cement ratio in excess of, or a cement factor less than, that corresponding to a point in the strength vs. water-cement ratio curve representing a strength of concrete, at the design slump, 15% higher than the specified strength called for on the plans. The design slump shall be as specified by the Engineer of Record or the Owner's Inspector and the concrete shall be placed at a slump equal to or

less than the design slump. The weight of the aggregate shall be such that the quality and consistency of the concrete shall be suitable for proper placing and required finishes. The concrete proportions used by the Contractor shall be such that daily field cylinder tests made will show that all the concrete used meets the strength requirements of the Contract.

a. The minimum cement content per cubic yard of concrete shall be as per the New York City Building Code.

b. In the design mix all exposed concrete shall be air-entrained, employing an approved air-entraining agent.

c. Materials shall be measured by weight, one bag of cement shall be considered as 94 lbs in weight and one gallon of water as 8.38 lbs.

7. The consistency of the concrete shall be such that it can be placed without segregation of the materials. The slump shall be 5" for stone concrete with a tolerance of plus or minus 1", with slump and weight checked frequently, and as requested by the Engineer of Record. Whenever it is indicated by inspection or tests that segregation has occurred to an extent that the quality or strength of the concrete has been impaired, the mix shall be revised by decreasing the water content, or increasing the cement content, or both. Water reducing admixtures may be used.

8. A sieve analysis of each shipment of aggregate shall be made by the test laboratory on the working day previous to its use. In lieu thereof, and subject to the approval of the Owner's Inspector, each shipment shall be accompanied by sieve analysis data which will be subject to check by the Owner's Inspector.

9. In the event that the grading of aggregate is sufficiently different from that used in the preliminary tests to indicate that water must be added to the design mix, to obtain proper plasticity, the testing laboratory shall determine from the established water-cement ratio the amount of additional cement required to be added, subject to the approval of the Engineer of Record.

10. The source of supply of the aggregate shall not be changed during the course of the job without

notice to the Engineer of Record, and the material from any new source shall be subject to acceptance or rejection by the Engineer of Record as based on the test to be made by the testing laboratory.

11. The Owner shall not be responsible for any variation in yield of each batch.

12. Should more than one concrete mixing plant be used at the same time for controlled concrete, the Contractor will bear the cost of additional plant inspection.

13. All tests shall be made in accordance with applicable provisions of the Standard Specification of the American Society of Testing Materials. Cost of this inspection and tests are to be borne by the Owner.

14. The Owner will engage the services of an Inspection Agency to provide the following services:

    a. Preliminary Tests.
    b. Take and test cylinders of concrete as placed.
    c. Plant inspection.
    d. Field inspection of concrete.
    e. Submit reports.

15. The Inspection Agency shall make, transport and test standard 6" diameter by 12" in height test specimens as required by applicable ASTM Specifications. Four test specimens shall be made for each 50 yards of concrete placed, or not less than four cylinders for each day's pour. The tests cylinders shall be clearly marked and the system of marking shall have a definite sequence. In addition, one set of three cylinders per 150 cubic yards of concrete placed shall be taken directly from the bucket or hopper and clearly identified. The test specimens shall be carefully stored and transported so as not to damage them in any way.

    a. Records shall be kept identifying each cylinder with the locations of the concrete from which the tests cylinders were taken.

    b. The method of making, storing and testing specimens shall be in accordance with the procedures set forth in applicable provisions of Standard Specifications of the American Society for the Testing of Materials.

16. The Inspection Agency is to provide a full time qualified inspector at the place of batching who will inspect concrete and materials for concrete.

17. The Inspection Agency shall provide adequate equipment for the determination of moisture content and gradation of fine and coarse aggregate. Adjustment shall be made in batch weights to compensate for variation in moisture content. The inspector shall verify the batch weights.

18. The Inspection Agency shall provide a qualified inspector at the site to see that concrete is thoroughly mixed and properly placed. It shall be the responsibility of the inspector to control the consistency of the mix in order that there will be no segregation due to excessive water. The inspector shall also supervise for proper spading and vibration of the concrete.

19. The Inspection Agency shall submit reports to the Engineer of Record. Five copies of all reports shall be submitted as the tests are completed and a weekly report of the amount of the concrete placed each day shall be submitted. The reports shall also include air temperatures. Results of cylinder tests shall be submitted to the Engineer of Record within 48 hours after breaking.

20. The inspectors shall immediately call to the attention of the Engineer of Record any discrepancies found in the work.

21. The Contractor shall furnish all materials to be tested and shall cooperate and provide every assistance to facilitate the work of inspection and testing.

22. If the results of these tests and inspections indicate that the concrete does not meet requirements as set forth on the drawings or in these Specifications or as otherwise unsatisfactory, the Contractor shall only proceed as will be directed by the Engineer of Record. Additional costs resulting from retesting, load testing, replacement of concrete and/or damage to the work of other trades and any delay caused to the schedule shall be borne by the Contractor.

23. If, during the progress of the work, it is found that concrete of the required workability and strength cannot be attained with the materials furnished by the Contractor, the Engineer of Record may order such changes in proportions or

materials, or both, as may be necessary to secure the desired results. Any changes so ordered will be at no cost to the Owner.

PART 2.0 - PRODUCTS

2.01 CEMENT

A. Portland Cement, meeting all requirements for Type I and/or Type III Cement of the Standard Specifications for Portland Cement of the American Society for Testing and Materials Designation C-150 (current edition), shall be used for all work. All the cement shall be stored in waterproof sheds. The Contractor shall submit mill test certificates for cement. Color of any exposed concrete is to be approved by the Architect.

B. During the course of construction no change shall be made to brand of cement unless approved by the Engineer of Record.

C. Cement shall be delivered and bear the name of the manufacturer and the brand and mill test certificates shall be submitted with each shipment. All cement shall be from one point.

D. Cement shall be stored in waterproof sheds, completely covered and protected from dampness. Cement in any container which has been caked, partially set, or otherwise deteriorated, or any material which has become damaged or contaminated, shall be rejected for use and shall be entirely removed from the site.

E. The Owner reserves the right to take samples for testing any or every lot of cement delivered upon the work. The tests shall be made as determined by the Owner and the cost of these shall be charged to the Owner when cement meets Specification requirements.

F. The use of high early strength cement shall be in accordance with Building Department Rules and Schedules. The use of high early strength cement Type III is not permitted except under special conditions and only on the express approval of the Engineer of Record. The use of high early strength cement will not be permitted except during the months of November, December, January, February and March. When such approval is given, it will be restricted to a specific location and limited to a given period of time. When permission has been given to use high early strength cement, a cement batching plant shall be set aside exclusively for high

early strength concrete during the time that this concrete is being supplied to the project. All bins, compartments, screws, conveyors, pipes, levers, etc., which are used for high early cement shall be properly painted with a distinctive color.

2.02 ADMIXTURES

A. For all exposed concrete an admixture shall be furnished which, when added to the mix, shall produce concrete compression strength at 7 days and 28 days as required by the Design Drawings and in compliance with the "water-cement laws." Such admixture shall entrain between 4% and 6% air by volume. The air entraining agent shall be Darex or approved equal. The air entrainment is to be checked as per ASTM C-138. Acceptable documentary evidence must be submitted with additives showing this material increases the durability of the concrete, and that such material has been in use for not less than 5 years.

B. For water reduction, an approved water reducing admixture and/or high range water reducing admixture may be used. Concrete containing the high range water reducing admixture shall have a maximum slump of eight inches unless otherwise approved by the Engineer of Record.

C. Calcium chloride or admixtures containing chloride ions more than present in municipal drinking water shall not be used.

D. Air entrained cement shall not be permitted.

E. All concrete cast on ground, such as ramps and slabs on grade shall have only air entraining agent specified above.

2.03 FINE AGGREGATE

A. Fine aggregate shall consist of sand, stone screenings or other inert materials with similar characteristics, or a combination thereof conforming to ASTM C-33 having clean, hard, strong, durable uncoated grains and free from injurious amounts of dust, lumps, soft or flaky particles, shales, alkali, organic matter, loam or other deleterious substances.

B. Sand shall meet the following requirements:

1. Colorimetric test in accordance with ASTM Designation C-40 current edition, color not darker than Figure 1.

2. Sediment test for excess loam (5% limit).

3. Sieve analysis as follows:

Sieve No.	% Retained
4	0 to 5
8	10 to 20
16	40 to 70
30	40 to 70
50	70 to 88
100	92 to 98

4. Fineness modulus shall be from 2.30 to 2.90.

5. No mica pyrites or other deleterious materials.

6. The mortar made with this sand must produce tensile strength at least equal to 80% of Ottawa Sand Mortar Briquettes, of the proportions of one part of cement to three parts of sand.

2.04 COARSE AGGREGATE

A. Coarse aggregate for stone concrete slabs shall consist of crushed stone, or gravel having clean, hard, strong, durable, uncoated particles free from injurious amounts of soft, friable, thin, elongated or laminated pieces, alkali, organic or other deleterious matter. Particles shall be well graded between the upper and lower limit in order that voids may be reduced to a minimum as follows:

Sieve Size	% Retained
1"	0
3/4"	0 - 10
3/8"	45 - 80
No. 4	90 - 100

2.05 WATER

A. Water for concrete shall be clean and free from oil, acid alkali, organic matter or other deleterious substances.

2.06 REINFORCEMENT

A. Reinforcing bars shall be deformed new billet steel bars manufactured by the basic open hearth or electric furnace process. Bars shall conform to ASTM A-615, Grade 60.

B. Welded wire fabric shall conform to ASTM A-82 and A-185. Wire fabric shall have a minimum ultimate strength of 70,000 psi. Splicing shall conform to the requirements of ACI 318.

C. Certified copies of mill reports for all reinforcing shall be submitted before reinforcing is placed.

D. Bars shall be correctly rolled to section and free from surface defects.

E. Splices in reinforcement shall be as directed. Lapped ends of bars may be placed in contact and securely wired or may be separated sufficiently to permit the embedment of the entire surface of each bar in concrete. Lapped splices shall not be used in bars larger than size No. 11. Splices in bars larger than No. 11, or where No. 11 bars are spliced to larger sizes, shall be welded. Splices in bars No. 11 and smaller may be welded as specified or lapped. Splices in adjacent bars shall be staggered.

2.07 FORMS

A. Forms shall be of such type as is necessary to produce the desired architectural effect.

B. The Contractor shall be responsible for the proper design, bracing, shoring and construction of all forms. He shall retain a licensed professional engineer to design such formwork, bracing and shoring in accordance with the requirements of the local Building Code.

2.08 MISCELLANEOUS MATERIALS

A. Premolded expansion joint filler strips shall be expanded polyethylene closed cell of approved type and size, as indicated on the drawings. Premolded fillers shall have adhesive surface on one side and shall be positioned as the construction progresses. Fillers shall be at least 30% wider than width of joint, (measured in the field) to which it is applied. Compression on installed filler shall be sufficient to allow no movement of filler in joint. Hardness shall be between 15-20 Shore A value. The methods employed in installing expansion joint fillers shall be according to procedures required by the approved product.

B. Six mil thick polyethylene vapor barrier over subgrade or 6" of gravel (by others) shall be provided under all slabs on ground supplied in the widest possible widths and lapped not less than 6" on all sides and turned up a minimum of 4" along the perimeter edges of the stone slab. Installation is to be in accordance with

manufacturer's recommendations. At all columns and interior concrete walls vapor barrier is to be lapped up 4" minimum.

C. Curing Compound: Material shall be Master Builders, "Masterseal" or approved equal.

D. Floor hardener where specified on the architectural drawings shall be three coats of "Lapidolith" as manufactured by Sonneborne-Contech, or approved equal.

E. Grout for setting base plates shall be pre-mixed, non-shrinking grout having a minimum compressive strength of 10,000 psi, and shall be "Embeco Grout No. 156" as manufactured by Master Builders Co., or approved equal.

PART 3 - EXECUTION

3.01 MIXING

A. All concrete shall be machine mixed.

B. A water gauge shall be provided to deliver the exact predetermined amount of water for each batch.

C. A reliable system must be employed to insure that no less than the predetermined amount of cement goes into each batch.

D. Retempering partly set concrete will not be permitted.

3.02 TRANSIT MIX CONCRETE

A. Transit mix concrete may be used provided it conforms to the Specifications and tests herein described and ASTM Specification C-94, current edition and further provided that the central plant producing the concrete and equipment transporting it are in the opinion of the Engineer of Record suitable for production and transportation of controlled concrete. The maximum elapsed time between the time of the introduction of water and placing shall be one hour. The minimum time of mixing shall be one minute per cubic yard after all material, including water, has been placed in the drum, and the drum shall be reversed for an additional two minutes. Mixing water shall be added only in the presence of the Inspecting Engineer or the inspector employed by the testing agency retained by the Owner. Trucks shall not be overloaded in excess of rated capacity as recommended by the manufacturer.

3.03 PLACING OF CONCRETE

A. Metal deck and forms shall be absolutely cleaned and free from shavings and dirt before starting concreting.

B. Concrete must be placed as rapidly as possible after mixing and thoroughly spaded and rammed in place. All possible care is to be exercised to prevent honeycombing and segregation. Placing of a rich mix adjacent to forms will not be permitted.

C. Concrete shall be placed in one operation up to temporary bulkheads which will be located in general at points of minimum shear with the approval of the Engineer of Record. Permissible locations of construction joints and additional reinforcement required shall be as shown on the Drawings. Where new concrete is to be bonded to the existing concrete, the surfaces of the existing concrete shall be swept with a stiff brush or scraped to remove laitance and roughened. The bonding surface after the removal of all loose particles shall be kept wet for an hour and shall be covered with a thin layer of grout just before placing the new concrete.

D. Concrete, if placed in hot weather, shall be wet twice daily for the first week's placement. Maximum placing temperature is to be 90 degrees F.

E. No concrete shall be deposited in water.

F. When depositing concrete at temperatures below 40 degrees F, the concrete shall have a temperature of at least 50 degrees F, but not more than 90 degrees F. The concrete shall be maintained at a temperature of at least 50 degrees F for not less than 72 hours after depositing and shall be sufficiently protected so that this temperature can be maintained. No salt or other chemical may be used for such protection.

1. The heating devices used by the Contractor to maintain the specified temperatures shall have baffle plate above, of sufficient size, and a sand bed below, in order to distribute heat.

2. The heating devices shall be so operated that the temperature of the air immediately below the slab forms shall not exceed 100 degrees F. The Contractor shall provide sufficient and suitable thermometers to verify compliance.

3. Calcium chloride shall not be used as an anti-freeze agent.

G. Concrete placed in "winter weather" shall be protected against freezing; no concrete containing ice shall be used. Definition of "winter weather" and protection of such placed concrete shall be as specified in ACI 306R, Chapters 1 and 4, respectively.

3.04 FORMS

A. Forms shall be constructed to conform to shape, form, line and grade required, and shall be maintained sufficiently rigid to prevent deformation under load.

B. The forms shall be true and rigid tight to prevent leakage of concrete, thoroughly braced and sufficiently strong to carry the dead weight of the construction as liquid without deflection.

C. Forms shall provide for all rabbets, reglets, keys, chamfers and projections as per detail drawings.

D. Removable panel openings at the bottom for forms for cleanouts and inspection shall be provided.

E. All exposed concrete surfaces shall be without voids. Where honeycombs appear, the loose aggregate shall be removed and the voids filled with cement mortar. After removal of fins, irregular surfaces shall be brought to smoothness by rubbing and troweling. On concrete exposed to view where metal ties are used, they shall be snap cone type detached 1" back from the surface of the exposed side. If exposed concrete contains defects which in the opinion of the Architect or Engineer of Record, are not suitable for appearance or permanency, the Architect or Engineer of Record may order same removed and replaced.

F. When pouring against previously placed concrete all rough projections shall be removed before continuing the work to secure a clean true joint. The surface of contact shall be thoroughly cleaned.

G. Tops of walls such as ramps, areaways and concrete retaining walls which will be permanently exposed, shall be finished with steel trowel. Tops of other walls and grade beams shall be floated level and true. The surface of ramp floors shall be screeded, darbied, floated and finally broomed to form a rough surface.

H. If any material is used to coat form work to facilitate the removal, this materials shall be such nature as not to stain or injure the concrete, or cause injury to the painted finish to be applied on exposed surfaces of the concrete.

I. Temporary shoring at midspan of all metal deck as required shall be provided.

J. Forms shall not be removed until the concrete has attained the strength to support its own weight and any construction loads. Under no circumstances shall forms be stripped before concrete has aged 48 hours unless otherwise approved by the Engineer of Record.

3.05 PLACING REINFORCEMENT

A. All metal reinforcement, before being placed, shall be free from loose rust or mill scale, grease, oil, clay or other coatings, or from substances that destroy or reduce the bond. Metal reinforcements shall be accurately positioned as called for on the drawings and shall be secured against displacement by using annealed wire of not less than No. 18 gauge, or by suitable clips at intersections and shall be supported on adequate spacers, bolsters and chairs except that reinforcement required for concrete to be placed on ground shall be supported on concrete briquettes at least 2" wide and 3" long and of a thickness to maintain at least clearances shown on the structural drawings. Chairs shall be plastic tipped. Other accessories may, at the option of the Contractor, be zinc coated, except on exposed surfaces which have plastic tipped accessories.

B. The top wire of all spacers, bolsters and chairs shall be corrugated.

C. Top reinforcement in slabs may be provided with transverse tie bars. Unless larger sizes or closer spacing is indicated on the drawings, these bars shall be a minimum No. 3 bars, 12" on center for roofs. Chairs supporting slab reinforcement shall be spaced as required by the drawings but shall not be more than 5 feet on center for bottom bars or more than 4 feet on center for top slab bars. Where top slab bars are more than 9 feet long, at least four rows of chairs will be required except where other equivalent support is supplied. For flat slab construction provide two additional parallel chairs equal to the column face in length and located 4" from opposite faces of interior columns for the support of top reinforcement.

D. High chairs shall be of the two different sizes so as to provide the cover over reinforcing bars as indicated on plans. They shall be made of No. 2 gauge wire for legs, with legs 8" o/c.

E. Reinforcement shall be bent cold. The minimum radius of bend shall be 4 diameters for bars 5/8" round or less, and 6 diameters for larger bars.

F. Where lapping or anchoring of reinforced steel is specified on the drawings in relation to the diameter of the bar, the actual diameter shall be taken. The actual diameter is defined as follows:

No. 3 bar .375"	No. 8 bar 1.00"
No. 4 bar .500"	No. 9 bar 1.128"
No. 5 bar .625"	No. 10 bar 1.270"
No. 6 bar .750"	No. 11 bar 1.410"
No. 7 bar .875"	

3.06 CONCRETE FINISHING AND CURING

A. Concrete surfaces, other than exposed concrete as noted above, shall be without voids except for occasional small air holes. Fins, projecting surfaces not in the same plane, irregular and defective surfaces and holes larger than 1/8" in diameter shall be brought to a reasonable smoothness by grinding or by rubbing suitable for application of plasterweld and 1/8" finish coat by others. This work shall be done as soon as possible after stripping of forms.

B. Surfaces of floor slabs where ceramic or terrazzo is specified for finish shall be screeded and roughened and left in a condition satisfactory to the Engineer of Record. Where carpet or vinyl tile is specified in Schedule of Interior Finishes, surfaces shall be steel troweled to provide suitable base for receiving the tile floor covering.

C. After the concrete has reached its initial set and is free from excess water, the top surface of all floors and roof slabs shall be treated with a curing material. Apply in accordance with manufacturer's directions.

1. During at least the first twelve hours after application, this film shall have a distinct color, all traces of which shall be invisible 30 days later so that the natural appearance of concrete is not changed. This material shall have no harmful effect upon concrete but shall form a film which, at the end of three days after application, retains in the concrete at least 90% of water if tested according to the ASTM Tentative Method of Testing for Water Retention by Curing Concrete Materials, C-156. Protect work during construction.

3.07 FLOOR PAVING

A. Unless otherwise noted, monolithic floor slabs on ground except supported slabs, shall be of strength and reinforced with welded wire mesh as shown on Drawings.

B. All soil or fill under concrete slabs on ground, except supported slabs, shall be thoroughly wet with water and tamped down or rolled down before depositing any concrete.

C. On top of porous fill placed under another Section, install 6 mil polyethylene vapor seal, lapped 6" at sides and ends and spot cemented. Care shall be taken not to tear the seal during pouring.

D. Where pipes under floor slabs are indicated on the drawings or have already been installed, the Contractor shall install the slab reinforcing and concrete to support the pipes as shown on the Drawings.

3.08 WORK IN CONNECTION WITH OTHER SECTIONS

A. Electrical conduits and boxes shall be placed in concrete. These conduits and boxes shall be installed under Electrical Division, but the Contractor under this Division shall cooperate in permitting the placing and securing of conduits and shall see that conduits or boxes are not displaced or damaged during placing of concrete. Aluminum conduit or pipe is not permitted in concrete.

B. Pipe Shaft: All boxed openings at pipe shafts in floors and roofs shall be installed as shown on drawings in accordance with approved shop drawings prepared by the Plumbing Contractor. Spaces between pipe sleeves shall be filled up with 3000 psi minimum concrete after same are in place. All grouting shall be done with cement and filled as required or necessary throughout the project.

C. Ventilating Duct Openings: All ventilating duct opening in floors and roofs are to be laid out in accordance with approved shop drawings prepared by Heating and Ventilating Contractor.

D. Cement fill for metal pan stairs as follows:

1. Pea-gravel concrete of 3000 psi over metal pan stairs and landings reinforced with 4 x 4 - W1.4 x W14. w.w.f. shall be provided.

E. Sleeves for all pipe penetrating concrete shall be furnished and installed as required for railings in concrete work. Sleeves required for railings shall be approved metal and fiber containers, and fiber wall of the sleeves to be removed before setting standards. Sleeves shall be of size and spacing required by the drawings to receive the standards and shall be set true and properly stayed to prevent displacement during the placing of concrete. Where sleeves are not set true and in proper location or out of alignment, they shall be removed and properly replaced. Sleeves shall be filled with sand until posts are placed and capped.

F. All pipe sleeves carried through floor slabs shall be carefully pointed around to present a neat finish.

G. All buffer channels and door saddles for elevators shall be grouted in.

H. Frames and covers furnished under Plumbing and Miscellaneous and Ornamental Metal Sections for all house traps, pits, etc. shall be solidly embedded.

I. Cooperate in setting floor drains, frames and covers for sump pits and all other similar fittings called for in the Plumbing Section.

J. Anchor bolts shall be installed, lintel and other structural members furnished under other Sections of the work where same are shown embedded in concrete work shall be set.

K. Reglets and grounds for flashings as required by the drawings shall be built in.

L. For embedded items such as threaded or wedge inserts and anchor bolts, the following shall be done:

1. Compliance with ACI 301, Chapter 6, Paragraph 6.4 and 6.5.

2. Anchorage devices are to be accurately set by line and transit, and the location of all anchorage devices to set for the accommodation of the work of other trades is to be coordinated.

3. Anchor bolts as shown on the Drawings and on shop drawings are to be located.

M. The Contractor is alerted that he is not to place concrete until other trades have completely finished their work of installing embedded items.

3.09 DAMAGED MATERIAL

A. All material which have been damaged or condemned shall be removed from the site.

3.10 CUTTING AND PATCHING

A. The Contractor shall be responsible for all cutting and patching of his work as specified in General Conditions of Contract.

B. The Contractor is referred to the Mechanical Drawings and Specifications for Plumbing, Heating and Ventilating, Electrical and Elevator Systems.

3.11 CONCRETE BASES FOR PUMPS AND MOTORS

A. Concrete bases and required anchor bolts, or other anchoring devices for all pumps, motors, etc., shall be installed as required by the Heating and Plumbing Section.

B. Bases shall be at least 2" greater on all sides than bases of the equipment to be installed.

C. Anchors from templates provided by others shall be set.

D. Concrete bases for house pumps:

1. 3/4" galvanized threaded dowels, provided by others in the concrete floor shall be installed.

2. 6" x 4" angle frame, provided by others, shall be installed.

3. Concrete base with top flush with top of 6" vertical leg of angle frame shall be installed.

E. The Contractor's attention is directed to Plumbing Section describing the work of this section. The Contractor shall coordinate his work and cooperate with the contractors of other sections.

3.12 CONCRETE FILL IN FLOOR SLOTS FOR PIPES

A. All slots in floors provided for passage of pipes and ducts shall be filled with concrete the full thickness of slabs.

B. Sleeves for pipes, provided by others, shall be properly aligned and set before slots are filled with concrete.

3.13 CLEANING

A. The premises shall be kept free from accumulation of waste material or rubbish. At the completion of the work, all surplus materials, tools and equipment shall be removed.

END OF SECTION

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SECTION 05100

STRUCTURAL STEEL

PART 1 - GENERAL

1.01 DESCRIPTION

A. General: Provide structural steel in accordance with Contract Documents.

B. Description of Work: Structural steel required for this work is indicated on the drawings and includes, but is not limited to the following:

1. Beams, girders, trusses and channels.
2. Columns, posts, struts and hangers.
3. Base plates and bearing plates.
4. Furnishing anchor bolts and wall plates.
5. Lintel angles, relieving angles, and all other support fittings and materials connected to the framework, including final adjustment.
6. Shop painting and field touch-up.
7. Bracing, guying and surveying of erected steel.
8. All connections.
9. All shoring and temporary bracing.
10. All reinforcing and bracing of structural steel as required for erection of the work.
11. Metal deck support angles or channels.
12. All other work which may reasonable be inferred as making the work of this Section complete.

1.02 APPLICABLE CODES AND STANDARDS

A. Standards and Codes:

1. Except as modified by the requirements specified herein, the following codes and standards (latest editions and revisions unless noted) shall apply to the work of this Section:

a. New York City Building Code.

b. AISC - "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings."

c. AISC - "Code of Standard Practice," specifically excluding portions of Sections 1, 3, 4, 5 and 9. Reference is made to Paragraph 3 below for modifications to same.

d. AISC - "Specifications for Structural Joints Using ASTM A325 or A490 Bolts" including commentary section.

e. American Society for Testing and Materials - ASTM Standards.

f. AWS - "Structural Welding Code," D1.1 - including all supplements, addenda, and special rulings applicable to building construction, except amendments to sections or inspection specified herein.

g. SSPC - "Steel Structures Painting Manual"

h. Welding Rules 13 thru 17, New York City Board of Standards and Appeals, Cal. No. 1-38 Sr, Volume II.

i. Occupational Safety and Health Act of 1970 (OSHA), as amended to date.

2. Recommendations or suggestions in the listed codes and standards shall be deemed to be mandatory.

3. Modifications to AISC - "Code of Standard Practice":

a. Section 1.2 - Definitions:

(1) Architect/Engineer - The Owner's designated representative responsible for the preparation of plans and specifications.

(2) General Contractor - The Owner's designated representative for construction of the structure.

b. Section 3.1:

The first sentence shall be modified as follows:

(1) "In order to insure adequate and complete bids, the Contract Documents provide structural steel plans showing in sufficient detail the work to be performed..."

(2) Par. 3.1.3 - At the end of the sentence, the words "unless otherwise noted" shall be added.

(3) Par. 3.3 - Discrepancies. The section shall be replaced with the following language:

"In case of discrepancies in plans and specifications for buildings, the more restrictive requirement shall govern unless otherwise agreed to by the Engineer. In case of discrepancies between scale dimensions on the plans and figures written on them, the figures shall govern".

(4) Par. 4.1 - Owner responsibility - The first sentence shall be replaced with the following:

"To enable the fabricator and erector to properly and expeditiously proceed with the work, the Owner furnishes, in a timely manner and in accordance with the contract documents, structural steel plans and specifications showing in sufficient detail the work to be released for construction". The balance of the section shall remain as is.

(5) Par. 4.2 - Approval - The second sentence shall be removed in its entirety.

(6) Par. 4.2.1 - The second sentence shall be removed in its entirety.

(7) Par. 4.2.2 - The second sentence shall be removed in its entirety.

(8) Par. 5.2.3 - After the words "Owner" on the next to the last line, the words "except where the quality of the material could not affect the integrity of the structure" shall be removed in its entirety.

(9) Par. 9.1.1 - The word "completely" shall be removed.

(10) Par. 9.3.2 - After the wording "extra work orders" the wording "or notations on the shop drawings and erection drawings when returned upon approval" shall be removed.

B. Testing and Inspection:

1. Prior to the fabrication of any steel, mill test reports shall be furnished to the Engineer of Record in accordance with shop drawings procedures. The test reports shall be obtained from the mill producing steel, certifying that the furnished steel meets the requirements for structural steel specified as to physical properties, inspection, marking and tests. (If required, these manufacturer's reports shall be filed with the Department of Buildings by the Contractor's representative.)

   a. Any additional reports, affidavits or other requirements of the Department of Buildings shall be furnished.

   b. Manufacturer's certification or letter of compliance of bolt, nut, washer and filler material for welding shall be furnished, to the Engineer of Record.

2. Testing and inspection of structural steel will be performed by an independent testing agency retained and paid for by the Owner. The inspection service shall be provided with the following:

   a. Information as to time and place of starting fabrication on shop.

   b. A complete set of approved shop and erection drawings.

   c. Cutting lists, order sheets, material bills and shipping bills.

   d. Representative sample pieces requested by the inspection agency, for testing, if necessary.

   e. Full and ample means of assistance for testing inspection of material.

f. Proper facilities, including scaffolding, temporary work platforms, etc., for inspection of the work in shop and field.

3. Each bolting crew and welder shall be assigned an identifying symbol or mark and all shop and field connections shall be so identified that the inspector can refer back to the crew or person making the connection.

a. Testing and Calibration: Apparatus and procedure for measuring torque and tension for calibrating wrenches shall be furnished and maintained by the Contractor, and shall be approved by the Owner's Inspection Agency. Impact wrenches shall be calibrated each day at beginning of work, each time the bolt size or length of pressure hose is changed, and at such other times as the inspection service may direct. Periodic checks of high-strength-steel bolted connections will be made in the field by the Owner's Inspection Service. Maintain at all times during fabrication and erection a suitable gauge for calibrating the torque wrench. Provide scaffolding and personnel as required for the testing of connections by the Owner's Inspection Service inspectors.

4. Shop inspection will consist of, but not limited to the following:

a. Certification of welders and welding procedures.

b. Inspection and testing of bolting and welding in accordance with contract documents, specifications and codes.

c. Examination of sections for proper cleaning and painting.

5. Field inspection will consist of, but not limited to the following:

a. Certification of welders.

b. Inspection and testing of bolting and welding in accordance with Contract Documents, Specifications and Codes.

6. All welding inspection for shop and field will, in general consist of complete visual inspection, and the following:

a. Magnetic Particle Inspection - as per ASTM E709.

(1) Manual Fillet Welds - Random testing approximately 10% linear inches of weld made.

(2) Automatic Fillet Welds - One foot of each end of all welds. (Applies to web-to-flange of plate girders. Elsewhere, 10% linear inches of weld made.)

b. Ultrasonic Inspection - As per AWS Section 6, Part C and Section 8.15.3.

(1) Manual Groove Welds - Ultrasonic testing, all welds - 100% tension, 25% compression.

(2) Automatic Groove Welds - Ultrasonic testing, 50% of all welds; minimum run 4 feet per web-to-flange of plate girders.

(3) Tension Welds - Ultrasonic inspection of all welds.

(4) Compression welds automatic 25% of all welds - manual - all welds.

(5) Procedures for testing prior to welding in regard to base material, shall be in accordance with ASTM A-435. Repair (or replace) rejected material at no cost to the Owner. Repair (or replace) repaired material if rejected after welding, at no cost to the Owner.

(6) Liquid penetration as per ASTM E-165, if required.

7. Inspection by the Owner's Inspection Service does not relieve the Contractor of his responsibility to perform the work and provide the materials required.

8. If material or workmanship is rejected by the Engineer or Owner's Inspection Service, the following procedures shall be adhered to:

a. Any and all material or workmanship which is rejected at the shop or building shall be promptly replaced without additional cost to the Owner.

b. Any applied marks or tags identifying rejected steel from any members shall be removed while they are on the job site or shop and any steel members are not to be re-used once they have been rejected.

c. Replacements shall be made to comply with requirements of drawings and specifications and as directed by the Architect or Engineer.

d. If arrangements for replacements are not made after seven days notice of rejection, the Owner will have the option to replace rejected material and charge the cost thereof against the balance of monies withheld.

e. Acceptance of steel work at shop will not preclude rejections, whether erected or not, if found defective in any way.

f. Rejected steel shall be removed from the site within three working days of notice of rejection without additional cost to the Owner.

C. Procedures for Defective or Substandard Welds:

1. When defects are revealed, additional inspection by whatever method is deemed necessary by the testing laboratory shall be performed to the extent necessary to assure that the full amount of defect has been located.

2. The Engineer may require additional examination of any welds where there is reason to question the weld quality.

3. Defects shall be repaired using approved welding repair procedure. Unless otherwise accepted by the Engineer, examination of the repaired weld shall be by the same method that was used to reveal the defect. A second repair of a defective area shall not be made without the approval of the Engineer.

4. In all cases where the inspector has reason to question the quality of the material or workmanship, no further work shall be done on the assemblies or sub-assemblies until proper corrections have been made.

5. Material or work that is not acceptable shall be designated by words such as "reject" marked directly on the material of the work.

6. Any weld which, upon examination or testing is found to be defective, shall be removed to the satisfaction of the Owner's Inspection Service and the weld shall be remade. The Contractor shall remake the welds and bear the costs of reinspection of such remade welds.

D. Reports:

1. Reports on shop and field welding and bolting and structural steel shall include the following:

   a. Name of inspectors.

   b. Description of work.

   c. Description of type of inspection.

   d. Type of weld (or bolts).

   e. Condition of weather.

   f. Welding operator's name and number.

   g. Type of welding equipment (or bolt size).

   h. Total inches of welds made (or bolted locations), inspection, rejection, acceptance.

   i. Remarks.

2. Immediately after tests or inspections have been made, the laboratory shall furnish copies of all tests and inspection reports as follows:

   Three copies to:

   Engineer of Record
   The Office of Irwin G. Cantor, P.C.
   219 East 42nd Street
   New York, N.Y. 10017-5736

   One copy to:

   Architect
   Skidmore, Owings & Merrill
   220 East 42nd Street
   New York, New York 10017

3. Permanent records of the details of all tests shall be maintained by the laboratory.

4. Laboratory data records and field books shall be available for examination by authorized parties upon request.

1.03 SUBMITTALS

A. The Contractor shall retain an engineer licensed in the State of New York to prepare design computations and detailing data regarding all connections. The computations shall be signed and sealed by such engineer who shall certify that the individual shop drawings are in conformance with such computations.

B. From the design drawings the Contractor shall submit to the Engineer for approval prior to fabrication full dimensioned drawings of all items in this Section.

C. Drawings shall include all fabrication, erection plans, member details, and anchor bolt setting plans. Column details, including column flange and/or web reinforcement sized by the Contractor in accordance with AISC requirements, and beam details shall be submitted simultaneously for each area. Index sheets and update for each submission shall be provided concurrently with the shop drawings they represent. Calculations shall be submitted.

1. Substitutions of shapes or sections, or modifications of details, or both and all deviations from the Structural Design Drawings, and the reasons therefore, shall be submitted with shop drawings for approval and shall be specifically called to the attention of the Engineer of Record. Failure to specifically indicate modifications, or revisions to previously submitted drawings, shall automatically be considered for rejection of the modification or revision whether or not the drawing has been approved by the Engineer.

2. The Contractor alone shall be responsible for all errors of detailing, fabrication, and for the correct fitting of the structural members.

D. The Contractor shall be responsible for the correct coordination of his work where it comes in conjunction and/or contact with any other work. Dimensions are the responsibility of the Contractor.

E. Fabrication of any material or performance of any work shall not proceed until shop drawings have been approved by the Engineer.

F. The details shall be prepared in such a way as to avoid having steel connections, bracing, etc., interfere with

architectural details or in any way reduce the area of shafts, openings, clearances, etc.

G. Samples of paint to be used shall be furnished with names and certification of formulas, if required. Samples of any other products and materials requested by the Engineer shall be furnished.

H. Mill certificates certifying chemical and physical properties of all steel furnished on the project shall be submitted.

I. Final Drawings: Drawings at completion of the structural steel work shall be submitted.

1.04 DELIVERY AND STORAGE

A. Structural steel shall not be handled until paint has thoroughly dried. Care must be exercised to avoid abrasions and other damage.

B. Material shall be stocked out of mud and dirt and proper drainage shall be provided. Structural steel must be protected from damage or soiling by adjacent construction operations.

C. Anchor bolts, bearing plates and other items to be set by other Contractors shall be delivered to the site in ample time for installation and with templates and/or setting instructions.

PART 2 - PRODUCTS

2.01 MATERIALS

A. All materials shall conform to the requirements of the current editions of the ASTM and other specifications and standards listed below.

2.02 STRUCTURAL STEEL

A. Structural steel shall comply with requirements of the following specifications:

1. Steel is to be ASTM A36, A572, or other, as noted on the drawings.

2. A certificate of conformance shall be submitted to the Engineer of Record by the steel manufacturer certifying that the steel is new steel steel conforming to the above referenced ASTM specification.

2.03 BOLTS

A. Bolts shall comply with requirements of the following specifications:

1. Ordinary Bolts (common) - ASTM A307.

2. High Strength Bolts (carbon steel) - ASTM A325.

3. High Strength Bolts (alloy steel) - ASTM A490.

4. All ASTM A325 and A490 bolts shall be preferably cold-forged and with rolled threads. Note: Type 2 A325 bolts and Type 3 A490's are not to be used.

5. All heavy hex nuts for high strength bolts must be ASTM A194 2H or ASTM A563 DH for use with plain (uncoated) bolts or nuts under ASTM A194 or A536 that have a minimum proof stress not below 175,000 psi. No other nuts are acceptable, and nuts must show both the manufacturer's mark and the relevant symbol.

2.04 WASHERS

A. Round washers shall conform to the American Standard B27, Type B. Washers in contact with high strength bolt heads and nuts shall be hardened in accordance with ASTM Designation A325. Beveled washers shall be furnished in accordance with the specifications of the "Research Council on Riveted and Bolted Structural Joints."

B. Hardened round washers in contact with high strength bolt heads and nuts must be manufactured to ASTM F436 which requires a hardness of 38 to 45 HRC and must show manufacturer's mark. Washers for use with short slotted or oversized holes on over 1" A490 bolts must also be 5/16" thick or thicker.

2.05 ELECTRODES AND FLUX

A. Electrodes and flux for carbon steel shall be low hydrogen (E70) and shall conform to the requirements of the current edition of the American Welding Society's Standard Code for Welding in Building Construction (D1.1) and current rules and regulations of the New York City Building Code, and local and state agencies having jurisdiction.

2.06 PAINT

A. Paint for shop coating of steel not exposed to the exterior shall be No. 88-555 or 10-99 as manufactured

by the Tnemec Company, Inc.; exposed exterior structural steel No. 50-330 or approved equal.

2.07 FABRICATION

A. The Contractor shall note the following:

1. End of beams shall be reinforced where cuts or blocks reduce shear or moment strength below required values.

2. Billet thicknesses indicated on column schedule are finished sizes.

3. Mill column and bearing stiffeners to give full bearing over the cross section. Plane contact surfaces of bearing plates. It is not necessary to plane bottom surfaces of plates on grout bed.

4. Camber shall be provided on those members where and as indicated on the drawings. Camber shall be measured at the mid-length of member. Members without specified camber shall be fabricated so that after erection any minor camber due to rolling or shop assembly will be upward.

5. Holes shall be drilled or punched at right angles to the surface of the metal. Holes shall not be made or enlarged by burning. Drill material shall have a thickness in excess of the bolt diameter and material thicker than 7/8". Holes shall be clean cut without torn or ragged edges. Burrs resulting from drilling operations shall be removed.

B. Size of Holes:

1. Ordinary holes shall be nominal bolt diameter plus 1/16".

2. Members with shear connections only that frame into exterior columns or spandrel girders may have elongated holes of nominal bolt diameter plus 3/16" in direction perpendicular to load. Elongated holes shall be placed in detail pieces only. Slotted holes will not be permitted.

3. Holes, slots and openings required by other trades and contracts shall be provided, together with necessary reinforcing as shown on the drawings. Suitable templates for proper location of these openings shall be used. Where openings are shown on the drawings or approved shop drawings, no change in location will be permitted without prior approval.

4. Manual oxygen cutting shall be done only with a mechanically guided torch. Any unguided torch may be used provided cut is not within 1/2" of the finished dimension and final removal is completed by means such as chipping or grinding to produce a surface quality equal to that of the base metal.

5. Exposed exterior structural steel shall have exposed sharp edges and corners ground off smooth and rounded or chamfered. Where water will collect in members, drain holes at low points with chamfered edges shall be provided.

2.08 CONNECTIONS

A. Connections shall be a minimum of 3/4" dia. with a minimum of 2 bolts. Minimum connections shall conform to appropriate tables headed "Uniform Load Constants" shown in the manual of steel construction of AISC. Composite beam reactions will be greater. Criteria for determining minimum connection capacity required is shown on the structural drawings. Seated connections may be used only when they do not interfere with architectural features.

B. Shop connections not indicated on the structural drawings shall be prepared by fabricator and submitted to the Engineer of Record for review. Where connections are indicated on the structural drawings, no deviation from the approved type and method thereof shall be made without the approval of the Engineer of Record. Single angle, one-sided, or other type of eccentric connections will not be permitted where two-sided connections can be used.

C. Connections designed by this Contractor, together with all the necessary computations, shall be submitted to the Engineer of Record for review. The Contractor shall accept full responsibility for the design of all connections, as required to resist the loads and reactions shown on the Contract Drawings and as specified excepting those completely designed and detailed on the contract documents.

Immediately upon submission of initial Typical Detail Sheets or erection drawings, the Contractor shall submit an affidavit from a licensed professional engineer in the State of New York, whose registration number shall appear on the affidavit, stating the following:

"All connections and details required to resist the loads and reactions shown on the Contract Drawings and as specified, excepting those completely designed and detailed on the Contract Documents will be designed by me personally or by qualified personnel under my direct supervision."

At the completion of the work, the Licensed Professional Engineer shall submit an affidavit stating:

"All connections and details required to resist the loads and reactions shown on the Contract Drawings and as specified, excepting those completely designed and detailed on the Contract Documents have been designed by me personally or by qualified personnel under my direct supervision."

D. Non-Standard Connections: Where standard connection cannot be used, the substituted connection shall provide for the reaction equal to that which a standard connection would provide. In addition, such connection shall be designed to transmit properly the total reaction, moments, and stresses without exceeding the allowable unit stresses.

E. Bolted connections: Bolts shall be driven accurately into the holes without damaging the thread, and bolt heads and nuts shall rest squarely against metal. Bolt heads shall be protected from damage during driving. Where structural members having sloping flange faces, bolted connections shall be provided with appropriate beveled washers to afford square seating for bolt heads or nuts.

1. All A325 and A490 bolts shall be drawn up to a bolt tension not less than that specified in Table 3 of the AISC Specification for Structural Joints using ASTM A325 of A490 bolts, and the Specifications for Structural Joints Research Council on Riveted and Bolted Structural Joints. An approved, calibrated, manual or power torque shall be used to obtain the proper torque and tension.

2. Bolts shall be of a length that will extend not less than 1/4" beyond the nuts.

3. High strength steel bolts shall be used in friction only.

4. High-strength bolted joints shall be made without the use of erection bolts. Bring members tightly together with sufficient high-strength "fitting-

up" bolts which shall be retightened as all the bolts are finally tightened. Manual torque wrenches will not be accepted for final tightening. Protect bolt heads from damage during driving. Provide washer under torque element.

5. Unfinished bolt heads and nuts shall be drawn tight against the work with a suitable wrench not less than 15" long. Bolt threads shall be mutilated for unfinished bolts to prevent the nut from backing off.

6. In addition to all other requirements, a hardened washer shall be installed between all bolt heads or nuts and material having elongated holes.

F. Welded Connections:

1. Before welding, particular attention shall be paid to surface preparation, fit up and cleanliness of surface to be welded.

2. Minimum preheat and interpass temperatures for structural steel welding shall be as specified in the American Welding Society Standard for Welding in Building Construction, except that no welding shall be performed when ambient temperature is lower than 0 degrees F. The temperature shall be measured from the side opposite that upon which preheat is applied.

3. Welding shall be done by the American Welding Society's approved methods.

4. The head, input, length and sequence of weld shall be controlled to prevent distortions. The surfaces to be welded and the filler metals to be used shall be subject to inspection before any welding is performed.

5. No welding shall begin until joint elements are bolted in intimate contact and adjusted to dimensions shown on the drawings, or both, with allowance for any weld shrinkage that is expected. Heavy sections and those having a high degree of restraint with low hydrogen type electrodes shall be welded. No members are to be spliced without prior approval of the Architect.

6. All groove welds shall be continuous and full penetration welds unless otherwise shown on the design drawings. Welds made without the aid of a backing bar shall have their roots chipped,

ground, gouged out to sound metal from the second side, before welding is done from the second side.

7. No joining in which material 2" or more in thickness is involved shall be interrupted once welding is started unless at least two thirds of its size for its full length is complete without an interruption of more than one hour. The welding may be interrupted for longer periods provided the required preheat temperature is maintained for the full length of the joint for the entire time the welding is interrupted.

8. Welds shall be sounded throughout. There shall be no defect in any weld or welds pass.

9. Welds shall be free from overlap.

10. Craters shall be filled to the full cross section of the weld.

11. Exposed exterior structural steel shall have joints seal welded.

G. The contact surface of high strength bolted and welded connections shall be cleaned and left unpainted. The several pieces forming any built-up or joint shall be straight and close fitting, free from twists, bends or open joints in the finished assembly.

H. Seated connections may be used only where they do not impose eccentricities on columns, where they do not interfere with architectural features and where approved by the Engineer.

I. Connections other than unfinished bolts shall be used in the following locations:

1. All connections indicated as other than unfinished bolts.

2. Connections for supports or running, machinery, trucks and/or of other live loads which produce impact.

3. Wind connections.

4. Connections carrying elevator loads.

5. Connections carrying cooling tower loads.

6. Beams supporting columns or posts.

7. Connections for cantilevers.

8. Connections carrying window washer loads.

9. Trusses.

10. All beams framing into columns.

2.09 SHOP PAINTING AND COATING

A. Preparation:

1. Structural steel exposed to the exterior shall be cleaned in accordance with SSPC-SP6 Commercial Blast Cleaning.

2. All steel shall be cleaned in accordance with SSPC-SP2 Hand Tool Cleaning.

B. After fabrication, all steel shall receive a shop coat of paint, except for the following:

1. Members encased in concrete and spray fireproofed.

2. Areas within 2" of field welds.

3. Contact surfaces of high strength bolted friction type connections.

4. Milled surfaces.

C. Application:

1. Paint shall be applied to dry surfaces, when temperatures are above dew point, thoroughly and evenly, strict accordance with manufacturer's label instructions, to provide a dry film thickness of 2.0-3.5 mils. Paint shall be dry before handling or loading steel for shipment.

2. Surfaces inaccessible after assembly or erection shall receive a second coat of the shop paint.

D. Machined surfaces shall be protected by an approved rust-inhibitive coating, readily removable prior to erection, or of a type not requiring removal.

E. Complete painting details shall be included in the shop drawings.

F. Field Touch-Up:

1. After erection, all damaged areas in the shop coat, loosened scale, rust, exposed surfaces of bolts, nuts and washers, and all field welds and

unpainted areas shall be cleaned to the same standards as the shop coat and painted with the same paint used for the shop coat, at same film thickness.

PART 3 - ERECTION

3.01 BENCH MARK AND LAYOUT

A. The Owner will provide, once, at the site, bench marks indicating grades, property and axis lines, generally at street or grade level, sufficient in his opinion for the construction of the project.

B. Surveys: The Construction Manager will provide a survey indicating the location of such bench marks. Such survey will locate building lines, lot lines and datum which shall be worked to by this Contractor. This Contractor shall rectify and correct all apparent errors after a check by survey of the completed work.

C. Protection and Relocation of Bench Marks: The Contractor shall erect and maintain protection for such bench marks during the construction of the project. If any bench mark require relocation, the Contractor shall offset such bench marks, when and as directed by the Engineer of Record and be responsible for its accuracy and maintenance.

D. Installation of Work Under This Contract: The Contractor shall be responsible for the accurate placement of his work in accordance with the location and elevations shown on the drawings and as extended from bench marks previously referred to.

E. Dimensions and Levels: Before starting the work, the Contractor shall verify all dimensions and levels. Levels shall be established accurately at certain points above each level of the building and shall be carried down to floor steel and maintained carefully during the progress of the work.

3.02 DERRICKS, CRANES AND SIMILAR EQUIPMENT

A. The Contractor shall process, pay for and maintain all permits and certificates of on-site inspection required for derricks, cranes and hoisting equipment. No derricks, cranes and hoisting equipment shall be operated without a certificate of operation and a certificate of on-site inspection.

1. Whenever the erection equipment is supported by the structure, the Contractor shall be responsible for the retention of a licensed professional

structural engineer to review the adequacy of the supporting members in relation to the loads imposed thereon. Where the imposed load exceeds the design load, the Contractor shall be responsible for any additional supports, bracing, connections, and similar measures required to support the imposed load of the equipment while in use.

2. If standard manufactured elements are used for hoisting, such equipment shall have posted thereon, charts indicating the maximum loading under varying conditions of use. If specifically designed, the Contractor shall be responsible for the retention of a licensed professional structural engineer to review the adequacy of the equipment for the loads to be imposed on it.

3. In addition to the above, all hoisting equipment shall be installed, operated and maintained in accordance with all applicable regulations of local city and state authorities having jurisdiction.

4. Street storage and sidewalk crossing permits shall be furnished by the Construction Manager.

3.03 ERECTION

A. Anchor bolts and other required anchorage items shall be verified for proper size and accurate location prior to erection of steel work.

B. Errors in shop fabrication or deformation resulting from handling and transportation that prevent the proper assembly and structural fitting of parts shall be reported immediately to the Engineer of Record, and approval of the method of correction shall be obtained. Approved corrections shall be made at no additional cost to the Owner.

C. Field connections shall be made as herein before specified.

D. Column billets and other bearing plates shall be supported and aligned on steel wedges or shims. After the supported members have been plumbed and properly positioned and the anchor nuts tightened the entire bearing area under the plate shall be packed solidly with grout, under another Contract. Wedges and shims shall be cut off flush with the edges of plates and shall be left in place.

E. Splices: Fastenings of splices of compression members shall be done after the abutting surfaces have been brought completely into contact. Bearing surfaces that

will be in permanent contact, shall be cleaned before the members are assembled.

F. As erection of the steel progresses, the work shall be fastened securely to take care of all dead load, wind and erection stresses. Particular care shall be exercised to insure straightness and tautness of bracing immediately upon raising a steel column. Splices will be permitted only where indicated on the Contract Drawings or the reviewed shop drawings. Poor matching of holes shall be corrected by drilling to the next larger size, and the use of larger size bolts. Welding or re-drilling will not be permitted without approval of the Engineer of Record. Hammering which will injure or distort the members will not be permitted. Driftpins may be used only to bring together the several parts, and shall not be used in such manner as to distort or damage the metal. All structural steel shall have suitable temporary braces and stays to hold it in position until permanently secured.

G. A re-survey of column elevations at every second splice or fourth floor, shall be made at each column. Shims shall be placed as required to re-level columns prior to bolting or welding of column section above.

H. Cutting of Steel: The use of flame, cutting torches, in the field for correction of fabrication errors will not be permitted on any member in the structural framing.

I. Location of Billet Plates: Diagrams and templates shall be furnished to properly locate billet plates. The location of anchor bolts and inserts shall be accurately placed by means of a survey made by a competent surveyor retained by this Contractor. Setting of anchor bolts in hardened concrete, due to error, shall be made in suitable drilled holes, and solidly grouted in place.

J. Exposed structural steel shall have joints seal welded.

3.04 PLUMBING AND LEVELS

A. All members shall be aligned, leveled and adjusted accurately prior to final fastening. Tolerances shall conform to the AISC Code of Standard Practice except that Section 7, Erection, Sub-paragraph 7.11.3.1 Columns, Items (a), (b), (c) and (d) shall be revised to read as follows:

B. Displacement Requirements:

1. Displacement of the centerlines of columns adjacent to elevator shafts from the dimensioned column lines shall be no more than 1" maximum at any point in the building.

2. The member working points of exterior column shipping pieces may be displaced from the established column line no more than 1" towards nor 1-1/2" away from the building line in the first 20 stories. Above the 20th story, the displacement may be increased by 1/16" for each additional story but may not exceed a total displacement of 1-1/2" towards nor 2" away from the building line.

3. The member working points of exterior column shipping pieces at any splice level for multi-tier buildings and at the tops of columns for single tier columns may not fall outside a horizontal envelope parallel to the building line, 1-1/2" wide.

4. The member working points of exterior column shipping pieces may be displaced from the established column line, in a direction parallel to the building line, no more than plus or minus 1/8" from the dimension location shown in any one floor nor more than plus or minus 1" in the first 20 stories. Above the 20th story the displacement may be increased 1/16" for each additional story but may not exceed a total displacement of plus or minus 1-1/2" parallel to the building line.

C. Plumbing: The structural steel shall be carefully plumbed during erection. The Contractor shall submit to the Engineer a drawing showing the true position of each steel column as each tier is completed.

3.05 FIELD PAINTING

A. After erection of structural steel exposed on exterior of building, all abrasions, bolt heads and surfaces left uncoated for welding and bolting shall be touched up with special epoxy-zinc coating. Touch up protective coating shall match epoxy-zinc shop coating.

B. After erection abrasions, bolt heads and surfaces left unpainted for welding and bolting shall be touched up with paint of a different color.

END OF SECTION

SECTION 05300

METAL DECKING

THE PORT AUTHORITY OF N.Y. & N.J.
TENANT CONSTRUCTION REVIEW UNIT
RECEIVED
NOV 10 1988
ALTERATION APPLICATION

PART 1 - GENERAL

1.01 DESCRIPTION

A. General: Provide metal decking in accordance with contract documents.

B. Description of Work: All materials, labor, equipment and services necessary to furnish, deliver, and install all work for this section shall be provided as shown on the drawings, as specified, and as required by job conditions, including but not limited to the following:

1. All Steel Framed Areas: Composite steel decking (permanent formwork) as required for concrete arch construction, including all steel stud shear connectors, closures, deck support angles at columns, reinforcing as hereinafter specified and all accessories as may be required for a complete and properly erected installation. Decking shall be furnished and installed so as to require no shoring from below.

2. Welding: Including all welding required to properly fabricate and erect the steel decking.

3. Cutting of Openings: Steel decking (permanent formwork) shall be cut by the Contractor as required to fit pre-determined holes and structural steel framed openings which are located and dimensioned on the structural, architectural, mechanical and electrical drawings.

   a. Other than predetermined holes, all holes required by other trades shall be provided by the trades requiring the holes (other than predetermined holes). Cutting shall be performed as hereinafter specified.

   b. Shop and field cutting of steel decking (permanent formwork) as required to provide sufficient clearance for brackets and the work of other trades and all coping and welding of such members shall be included under the Contract.

4. Reinforcing for Openings and Holes: The reinforcing required for all openings and holes passing through the steel decking shall be furnished and installed under this Contract regardless of by whom the holes have been cut.

5. Accessory Items:

   a. Continuous edge closures, closure plates, end closures, flashing and the like, as required to properly prepare the decking to receive the concrete, and the welding of all such work, as required.

   b. Filler plates as may be required to close gaps between decking and structural concrete.

6. Hoisting of all materials required to be furnished and installed under this Contract.

7. Painting: All touchup painting required for weld areas and damaged surfaces of steel decking and accessory items shall be performed under this Contract.

8. Safety Requirements: The Contractor shall be held responsible for compliance with the safety requirements of all city, state and federal agencies having jurisdiction, including the Occupational Safety and Health Administration.

1.02 RELATED WORK DESCRIBED IN OTHER SECTIONS

A. Concrete Work - Section 03300.

B. Structural Steel - Section 05100.

C. Spray-On Fireproofing - Section 07270.

1.03 QUALITY ASSURANCE

A. Structural adequacy of deck sections shall be established in accordance with the methods set forth in the latest edition of the AISI Specifications for the Design of Cold Formed Steel Structural Members. The "moment" and deflection coefficient used shall be in accordance with the Steel Deck Institute's recommendations. Metal decking shall sustain all dead loads plus live loads.

B. Certification of Welders: All welding shall be performed by competent experienced welding mechanics. Furnish certification stating that all welders employed

on the work have passed qualification tests using procedures specified in the American Welding Society's Standard B3.0, Part II, current edition, and that such welders have been performing satisfactory welding of the required type within the three month period immediately preceding this job.

1. A certification shall be submitted for each welding mechanic stating date of examination, results of testing, name of welder, and name and title of person conducting the examination.

2. All welders shall be licensed by the State of New York.

C. Standards: All welding shall be performed in accordance with the applicable sections of the American Welding Society's Standard D1.0 for Welding In Building Construction.

D. U.L. Approval: All welding shall be performed in strict accordance with the Underwriter's Laboratories' approvals in all cases, with no interchangeability or equivalent materials authorized.

1.04 SUBMITTALS

A. Drawings: Based on design drawings, the Contractor shall prepare fabrication and erection drawings of all steel deck work. In addition, shop drawings shall be prepared and submitted to the Engineer of Record for review.

B. Design Computation: In accordance with the Engineer of Record's design, the Contractor shall detail and be responsible for the component parts of the steel deck, indicating location, type, size, and materials, welds (length and dimensions), reinforcing, closures and the like.

C. Shop drawings shall be submitted, sufficiently in advance of the start of the work to allow time for examination and review. No fabrication shall be started prior to review of the drawings.

1. Modification of details and all deviations from the design drawings, and the reasons therefore, shall be submitted for review with the shop drawings. Each modification or deviation shall be brought to the Engineer of Record's attention.

2. Responsibility for all errors in detailing, fabrication and fitting of the steel decking shall be

the Contractor's. Care shall be taken to maintain all architectural clearances.

3. Index sheets shall be submitted with all deck details at time of submission. Where field welding is required, details shall be submitted at same time as corresponding shop drawings.

D. Mill Reports: The Contractor shall submit mill reports (certified) covering the physical properties and other pertinent information of all steel decking required under this Contract.

1.05 DELIVERY AND STORAGE

A. All material shall be delivered to the construction site free from warpage, rust, dirt and shall be stored under protective covers on dunnage.

PART 2 - PRODUCTS

2.01 STEEL DECKING

A. Steel deck panels shall be "United Steel Decking Lok-Flor" composite deck as manufactured by United Steel Deck Inc., New Jersey, or equivalent. Panels shall be as noted on plans and shall be galvanized and formed from steel conforming to ASTM A-446 Grade A. Galvanizing to comply with ASTM 525, coatingdesignation G-60.

B. Shop Welding of Steel Decking: When two or more units are assembled by welding to form one unit, and the properties of that unit have been calculated in accordance with the AISC Specifications, the welds integrating the sheets into the unit shall be sufficient to develop the full horizontal shear at the plane where the sheets are jointed. The design strength per weld shall be in accordance with the aforementioned specifications.

C. Spot welds shall be made using resistance spot-welders with electronic timers and heat controls, with uniformly applied pressure, and incorporating slope and temper controls to properly anneal the welds.

2.02 CLOSURES AND FLASHING

A. The Contractor shall furnish and weld in place all sheet metal closures and fillers as required to close between floor units and columns, beams and girders, ends of runs, and in all other locations where shown and noted on the Structural and Architectural Drawings.

Include metal flashing wherever shown. In addition include closures, fillers and flashing in all locations as required for proper installation whether or not indicated on the Drawings.

B. Gauges: Except as otherwise indicated on the structural drawings, closures and fillers shall be not less than No. 18 gauge in thickness; flashings not less than No. 12 gauge.

C. Deck support steel required to be furnished and installed under this Contract shall conform to the requirements of ASTM A36, current edition. Sizes of steel angles shall be in accordance with the details at columns appearing on the Structural Drawings

2.03 SHEAR CONNECTOR STUDS

A. Shear connectors shall be 3/4" diameter steel studs conforming to the requirements of ASTM A-108, current edition, for cold finished carbon steel bars and shafting, Grades 1015-1020. Studs shall have a minimum tensile strength of 60,000 psi and yield strength of not less than 50,000 psi. Studs after welding, shall have a length of 5", as required by the Structural Drawings. Stud heads shall be 1-1/4" in diameter with a minimum 3/8" depth. Studs shall be complete with ferrules compatible with decking used and shall be as manufactured by the Nelson Stud Welding Company, Type "S3L."

B. Studs shall be of uniform diameter, and heads shall be concentric and normal to shaft. After welding, studs shall be free from any substance or defects which would interfere with its function as a shear connector. Studs shall remain unpainted and ungalvanized.

PART 3 - EXECUTION

3.01 ERECTION

A. Coordination With Other Trades: It shall be understood that certain portions of the steel decking installation may be delayed in order that other trades may complete their work in proper sequence.

B. Manufacturer's Standard: All steel decking shall be erected in accordance with the manufacturer's standard methods. Steel deck shall be placed on the supporting steel frame work and adjusted to final position before being permanently fastened. Each unit shall be brought to proper bearing on the supporting beams. If the supporting beams are not in proper alignment, or at proper

level, this Contractor shall bring the matter (in writing) to the attention of the Engineer of Record for corrective action, and shall see that the correction is made before finally placing steel deck units.

C. Erection: Panels shall be placed with edges up and flutes at right angles to structural steel supports. End laps shall always occur over supporting members. Minimum end lap shall be 2". Panels shall be lapped not less than 1/2" flute at side laps and welded at 3'- 0" on center. Panels shall be attached to top flange of steel beam supports by 3/4" dia. fusion welds at 12 inches on center.

D. Welding: Unless otherwise noted on the structural drawings, end laps shall be fastened using a weld washer at each side lap plus one intermediate weld (three welds per sheet). At intermediate supports weld sheets at side laps at 2' 6" on center.

E. Alignment and Span: The floor unit shall be placed in straight alignment for the entire length of the run of the peaks and valleys.

F. Installation of steel decking shall closely follow the erection of the structural steel framing.

G. Closures shall be fastened in place by tack welding not more than four feet on center for end closures and not more than three feet on center for side closures.

H. Column closures shall be cut and placed to suit the job conditions.

I. After panels have been placed and aligned, they shall be immediately welded to the supporting steel.

3.02 HOLES AND OPENINGS

A. Openings: Steel decking shall be cut by this Contractor to fit all structurally framed openings as specified under the "Scope."

B. Definitions for Openings: Openings shall be defined as the apertures through the steel decking such as openings for stairs, shafts, and the like, the framing of which will be furnished and installed under this Structural Steel Contract, as indicated on the Drawings. Such structural steel framing shall provide adequate support with a minimum bearing of three inches, unless otherwise shown.

C. Holes: Steel decking shall be cut by the respective trades as required to pass their work from floor to floor.

D. Definition of Holes: Holes shall be defined as any aperture cut through the steel flooring in unframed areas to accommodate sleeves for pipes, ducts, conduits and the like.

E. Reinforcing: All holes and openings cut through steel decking shall be reinforced under this Contract as previously specified under the "Scope", except that holes 6" or less in diameter, and holes in which the distance cut across a flute is 6" or less, need not be reinforced, provided adjacent holes are not closer than 2'-6" on center. Required reinforcing shall be U.S.S. No. 14 gauge sheet steel and 4", 5.4 lbs. steel channels respectively as shown and noted on the Structural Drawings. All welds shall be a minimum of 3/4" in length and spaced not more than 8" on center.

F. In all locations where support of the floor units has not been provided by the steel framing, it shall be this Contractor's responsibility to furnish and install sufficient reinforcement and support the decking. Such support and reinforcing shall meet the Engineer of Record's approval.

3.03 INSTALLATION OF SHEAR CONNECTOR STUDS

A. Shear connector studs shall be installed immediately following the placement and fastening of steel decking, but shall not be installed on wet deck units or structural steel.

B. Stud Length: Length and spacing of studs shall be as specified on the Structural Drawings.

C. The Contractor shall clean all steel removing, all dirt, water, rust, oil, and any other material which may interfere with welding operations.

D. The minimum power settings for stud welding shall be as follows:

Time: 65 cycles.
Current: 1500 amperes.

E. When stud welding operations are interrupted or when a welding failure occurs, settings shall be checked and reset, if necessary.

F. The source of welding power for shear connector studs shall consist of a single generator either electrically

or diesel powered with a rated output of not less than 2,000 amperes. Multiples of electric or gasoline driven welding generators may be used if properly paralleled to provide the required 2,000 ampere output.

G. The stud welding hand tool shall have a one-piece molded plastic body designed so that the arc-length may be adjusted as required. The welding timer-contractor shall be capable of maintaining a weld duty cycle of at least ten 3/4" diameter or eight 1/8" diameter welds per minute, and shall not require a separate electrical activating source.

H. Shear connector studs shall not be installed without ferrules. After welding in place of the shear connector studs, the ferrules shall be removed.

3.04 FIELD QUALITY CONTROL

A. Inspection of steel decking shall include the following:

1. Verification that all steel decking is erected in accordance with approved drawings, Contract Documents and Code requirements.

2. All field welding of metal deck to steel supporting members shall be inspected by visual means to ascertain that all welds conform with drawings and with the applicable code requirements.

B. Inspection and testing of studs shall be as per AWS D1.1 and applicable codes.

1. A minimum of five shear connectors shall be welded to a test plate at the start of each production period in order to determine proper generator, control unit and left settings. These studs shall be capable of being bent 45 degrees from vertical without weld failure.

2. If, after permanent welding, visual inspection of studs reveals that a sound weld and/or 360 degree fillet has not been obtained for a particular stud, such shall be struck with a five-pound hammer and bent approximately 15 degrees off the perpendicular to the beam. Studs meeting this test without weld failure shall be considered acceptable and shall be left in such position. Studs failing under this test shall be removed and replaced.

3. During the welding operations shear connector studs shall be continuously tested. A minimum of

two studs on each structural member shall be tested, with tests being made at 1/3 points of the span. If a failure occurs then every shear connector stud on the structural steel member upon which failure occurred shall be tested. Studs which have failed shall not be reused.

C. Testing and inspection of welding will be supervised and paid for by the Owner.

END OF SECTION

SECTION 09440

RESIN MATRIX FLOORING

PART 1 - GENERAL

1.01 DESCRIPTION

A. General: Provide resin matrix flooring in accordance with the Contract Documents.

1.02 QUALIFICATIONS

A. Installer: A firm with a minimum of 3 years successful experience in the installation of the specified materials and which is approved by the resin matrix flooring manufacturer. Employ only tradesmen experienced with the installation of the materials specified.

1.03 SUBMITTALS

A. Manufacturer's Data: Submit manufacturer's specifications, installation instructions and other data as may be required to show compliance with the Contract Documents.

B. Samples: Submit samples of each type of resin matrix flooring specified in colors as selected. Samples shall be 12 in. square, on plywood and shall show the various stages of installation.

C. Maintenance Instructions: Submit manufacturer's written instructions for maintenance of each type of resin matrix flooring.

D. Guarantee: Upon completion of the resin matrix work submit, on the attached form, guarantees stating that the resin matrix flooring systems installed will be waterproof and free from defects for a period of not less than five (5) years from date of final acceptance and that in the event any leaks occur within the period stipulated, the Contractor shall, at the convenience of the Owner, effect all repairs and replacements necessary to remedy defects.

1.04 PRODUCT HANDLING

A. Deliver materials in manufacturer's standard unopened packaging, fully identified.

B. Store materials above grade and protected from the weather, soiling or damage. Store in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General: Provide all resin matrix flooring, waterproofing membrane which occurs in association with resin matrix systems, and other required materials produced by a single manufacturer.

B. Mechanical Equipment Flooring (RM-4): Trowel-applied, water dispersed, 100% neoprene resin elastomeric membrane reinforced with glass fiber mesh, a monolithic flooring surface and a color topcoat. Provide manufacturer's complete system to achieve a total thickness of not less than 3/16 in.

1. "Dex-O-Tex, M-E Floor" (Crossfield Products Corp.).

2. "Promdek Traffic Membrane" (Selby-Battersby & Co.).

3. "Merflex, System B" (MacNaughton-Brooks).

C. Epoxy Resin Flooring (RM-5): Trowel-applied, water dispersed, 100% neoprene resin elastomeric membrane reinforced with glass fiber mesh, a monolithic chemical resistant aggregate with 100% solids, epoxy resin flooring surface and slip resistant epoxy topcoats of colors and textures as selected by the Architect.

1. "Dex-O-Tex" (Crossfield Products) as follows:

   a. Membrane Waterproofing: As specified hereinafter, 1/16 in. minimum thickness.

   b. Flooring: "Cheminert K", 1/4 in. minimum thickness.

   c. Topcoats: "Cross Guard, Posi-Tred", 15 mils minimum thickness.

2. "Selbaclad" (Selby-Battersby) including the following:

   a. Membrane Waterproofing: As specified hereinafter, 1/16 in. minimum thickness.

   b. Flooring: "Selbaclad 425", 1/4 in. thick.

   c. Topcoats: "Selbaclad Topcoat", epoxy topcoats in colors, gloss and textures as selected by the Architect.

3. "Plexite" (MacNaughton-Brooks) including the following:

   a. Membrane Waterproofing: As specified hereinafter, 1/16 in. minimum thickness.

b. Flooring: "Plexite", 1/4 in. thickness.

c. Topcoats: Epoxy topcoats in colors, gloss and textures as selected by the Architect.

D. Neoprene Waterproofing (RM-6): Trowel-applied, load bearing, water dispersed, 100% neoprene resin elastomeric membrane reinforced with glass fiber fabric. Provide manufacturer's complete system to achieve a total thickness of not less than 1/16 in.

1. "Dex-O-Tex Membrane Waterproofing" (Crossfield Products Corp.).

2. "Promdek Waterproof Membrane" (Selby-Battersby & Co.).

3. "Neo-V, Type II" (MacNaughton-Brooks).

E. Metal Edge Strips: Mill finished stainless steel, AISI Type 302, of standard design. Provide concealed anchorage type unless otherwise shown.

F. Colors of resin matrix floorings shall be as selected by the Architect from the manufacturer's standard range.

PART 3 - EXECUTION

3.01 CONDITIONS OF SURFACE

A. Examine the substrates, adjoining construction and the conditions under which the Work is to be installed. Do not proceed with the Work until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Clean and prepare the substrate in accordance with the resin matrix flooring manufacturer's instructions. Grind and fill concrete surfaces as required to meet tolerances specified by the resin matrix flooring manufacturer. Etch concrete substrate with muriatic or hydrochloric acid to remove curing compounds and laitance. Remove all traces of acid.

B. Apply sealer and bonding agent to substrates in accordance with the resin matrix flooring manufacturer's instructions.

C. Coordinate the installation of resin matrix flooring with floor drains, equipment bases and other adjacent work. Mask adjacent work to prevent soil marks.

3.03 INSTALLATION

A. Comply with the resin matrix flooring manufacturer's directions for the mixing, placing, finishing and curing of the resin matrix flooring.

B. Complete flooring work prior to contiguous work which would be damaged by the spillage of water, resin matrix or other materials required.

C. Extend flooring into recesses, floor drain, over mechanical equipment bases, and under equipment in the spaces shown to receive resin matrix flooring. Include integral cove bases, raised bases and depressions to form a complete monolithic covering without interruptions or seams. Place and finish flooring neatly around obstructions, in a manner that will achieve uniform color and texture throughout.

D. Install metal edge strips in continuous lengths at edges of resin matrix flooring and bases, unless otherwise shown. Anchor strips solidly to substrate with countersunk non-magnetic stainless steel screws; space anchors 1 in. from each end and not more than 9 in. on centers at intermediate points. Install strips before priming substrate.

E. Patch resin matrix flooring applied over equipment boxes following equipment installation, as required to maintain monolithic waterproof integrity.

F. Provide non-slip textures where indicated. Provide colors and textures as selected by the Architect.

3.04 CLEANING

A. Protect resin matrix flooring throughout the construction period so that it will be without any indication of use or damage at the time of acceptance by the Owner.

B. After curing, but not more than 4 days before acceptance or occupancy by the Owner, clean flooring as recommended by the manufacturer. Remove masking and soiling from adjacent work.

* * *

SECTION 09440

GUARANTEE

TO

OWNER: Salomon Brothers Inc.

PROJECT: 7 World Trade Center

ARCHITECT: Skidmore, Owings & Merrill

REFERENCE: Technical Specification Section 09440, Resin Matrix Flooring

TIME: Period of Guarantee: 5 years.
Starting Date: _____

GUARANTEE: In accordance with the provisions of the Contract Documents, the undersigned hereby guarantee that the resin matrix flooring systems installed will be waterproof and free from defects of materials or installation which have failed in delamination, cracks, splits, voids, holidays or blistering for a period of not less than five (5) years from date of final acceptance and that in the event any leaks occur within the period stipulated, the Contractor shall, at the convenience of the Owner, effect all repairs and replacements necessary to remedy defects.

CONTRACTOR: _____ Date: _____

BY: _____ _____
(signed) (printed)

SUBCONTRACTOR: _____ Date: _____

BY: _____ _____
(signed) (printed)

MANUFACTURER: _____ Date: _____

BY: _____ _____
(signed) (printed)

181-P

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

M E M O R A N D U M

To: Mr. L. Menno, Manager, Contract and Tenant Services Division, WT&EDD
From: Ennala Ramabhushanam
Date: January 3, 1991
Subject: **WTC - ALTERATION APPLICATION W-7004 - SALOMON BROTHERS - 7 WTC - BASE BUILDING MODIFICATIONS TO TOILETS - P.A. PACKAGE NUMBER 39**

Reference: Tenant Alteration Review Request, dated 12/10/91

Copy To: J. Costa, G. Gaeta, R. Wegel, Job Folder, Chrono Folder

A review of the material listed below and submitted with the referenced request for the subject application has been made.

It is recommended that approval to proceed with construction be granted.

There are no comments.

Drawings:

Door and Finishes Schedules:

REMARKS: 1) This memorandum was transmitted to the Facility via OA on January 3, 1992.

Ennala Ramabhushanam, P.E.
Manager
Quality Assurance Division

GLE/dm
att.

TENANT ALTERATION REVIEW REQUEST
World Trade and Economic Developement

No.	Routing	Loc.
	QUALITY ASSURANCE	**51W**
✓	P.Cooper	W/3
	IN HOUSE	**36S**
___	R.Becker	W/1
___	V.Levinson	W/1
___	Sen Pu Chiao	W/1
	WT&BDD CONSTR.	**36N**
✓	P.Cavanagh	W/1
	OPERATIONS	**B2 RM.211**
___	T.Cancelliere	W/1
	RISK MANAGEMENT	**Z57**
__	S.Altman PATC 3FL	W/1
__	G.Sepie PATC 2FL	__
	ASBESTOS	**36N**
___	F.Boyce	W/1

Applicant's Name: SALOMON BROS. INC.

Facility: WORLD TRADE CENTER

T.A.A. No: W 7004-2

Dwg.No(s). ✓ See attached (P.A. PACKAGE # 39)

Contract No: WTC 597.004

Location: 7 WTC - 36, 37, 44

Date: DECEMBER 10, 1991

[ ] SPECIAL INSTRUCTIONS: MODIFICATION TO BASE BUILDING TOILETS ON FLOORS 36, 37 & 44

Originating Unit: 093

Contact: E. McNIERNEY

Extn: 435 - 2340 36W

Please return no later than: DECEMBER 26, 1991

Supervisor: Rick Wegel Extn. 435 - 8693 36W

Submission: 1st [✓] 2nd [ ] 3rd [ ] 4th [ ] 5th [ ] 6th [ ] other [ ]

Construction cost: $ N/A

Description of work:

[ ] General construction: [✓] Construction limited to: TOILETS

[ ] Minor work including:

[✓] Architectural [✓] Electrical [✓] Plumbing [ ] ~~DESIGN STANDARDS~~
[ ] Structural [ ] HVAC [ ] Sprinkler [ ] _____
[ ] Other: _____

THE PORT AUTHORITY OF N.Y. & N.J.
ENGINEERING DEPT., QUALITY ASSURANCE DIV.
DEC 1991 (20)
W-7004-2
RECEIVED
TENANT CONSTRUCTION REVIEW UNIT

Attached are:

[ ] BS&A / MEA resolutions [ ] Laboratory test reports for carpeting
[ ] Catalog cuts [ ] Samples [ ] _____
[ ] Consultants' responses to Port Authority review comments

Remarks: _____

cc: ~~C. Daly~~, G. Gaeta, ~~E. Monteverde~~, T. Rush, J. Uryini, R. Wegel, G. Wenger, E. McNIERNEY (Proj. Mgr.), A. CELLA (Rentals Rep.)

Signature: _____ Date: 12-5-91

(For) **Louis Menno, Manager**
Contract and Tenant Services Division
World Trade and Economic Developement

jpv 05/10/91

S K I D O R E, O W I N G S & M E R L L
220 E. 42ND STREET, NEW YORK, NEW YORK 10017

TRANSMITTAL

TO: Port Authority of NY & NJ
1 World Trade Center
New York, NY 10048

Att'n: R. Wegel

RE: SALOMON BROTHERS INC.
7 World Trade Center
New York, NY 10048

WE ARE SENDING HEREWITH THE FOLLOWING:
X DRAWINGS X SPECIFICATIONS _____ SHOP DRAWINGS _____ SAMPLES _____

4 SETS B&W FULL-SIZE PRINTS AND
2 SETS B&W HALF-SIZE PRINTS :

SEE ATTACHED DRAWING LIST OF CHANGES DATED 11/4/91

6 PHOTOCOPIES EACH :

Door Schedules	Floors 36,37,44
Finish Schedules	Floors 36,37

The above information has been issued to Port Authority for approval of construction changes to Women's Toilets on Floors 36/37 and Men's Toilet on Floor 44.

THE PORT AUTHORITY OF N.Y. & N.J.
ENGINEERING, QUALITY & SERVICE DIV.
DESIGN STANDARDS
Office copy W-7004-2 (20)
DEC 1991
RECEIVED

By: Messenger
DATE: November 21, 1991

[] RECEIPT AND RETURN TO SOM REQUESTED X Joseph Goldstein

COPIES TO: CF: 6234-135 - transmittal only
Silverstein Properties - Cynthia Price : 6 sets B&W, 6 photocopies
Nancy Ng (SBI) - transmittal only
Natan Bibliowicz (SOM) - transmittal only

S K I M O R E, O W I N G S & M E .I L L
220 EAST 42ND STREET, NEW YORK, NEW YORK 10017

BULLETIN No. 160

TO: Salomon Brothers Inc
7 World Trade Center
New York, NY 10048
46th Floor
Att'n: K. Coopersmith

RE: SALOMON BROTHERS INC.
7 World Trade Center
New York, NY 10048

WE ARE SENDING HEREWITH THE FOLLOWING:
X DRAWINGS X SPECIFICATIONS _____ SHOP DRAWINGS _____ SAMPLES _____

This Bulletin has been issued to furnish information supplemental to the contract. All work required by this Bulletin shall comply with the applicable provision of the Contract Documents, unless otherwise shown or specified.

1 B+W PRINT EACH :

SEE ATTACHED DRAWING LIST OF CHANGES DATED 11/4/91

1 PHOTOCOPY EACH :

Door Schedules	Floors 36,37,44
Finish Schedules	Floors 36,37

The above information has been issued as Bulletin No. 160 for client requested changes to Women's Toilets on Floors 36/37 and Men's Toilet on Floor 44.

By: Messenger
DATE: November 4, 1991

BULLETIN No. 160

[] RECEIPT AND RETURN TO SOM REQUESTED

X Joseph Goldstein

COPIES TO: CF: 6234-135
See attached distribution list

7 WTC
DISTRIBUTION
BULLETIN No. 158

SALOMON BROTHERS INC 46TH FLOOR, 7 WORLD TRADE CENTER

M. FERNANDEZ	1 TRANSMITTAL COPY
N. NG	1 SET B+W; 1 PHOTOCOPY
K. COOPERSMITH	6 SETS B+W; 6 PHOTOCOPY

SOM 220 EAST 42ND STREET

N. BIBLIOWICZ	1 SET B&W (1/2 SIZE); 1 PHOTOCOPY
J. GOLDSTEIN	1 SET B+W (1/2 SIZE); 1 PHOTOCOPY; 1 SET SEPIAS
S. DANIELPOUR	1 SET B+W (1/2 SIZE), 1 PHOTOCOPY
CF6234-135	1 TRANSMITTAL COPY

FLACK & KURTZ 475 FIFTH AVENUE

D. COOPER	3 SETS B&W (1/2 SIZE); 3 PHOTOCOPY

SALOMON BROTHERS INC.
DRAWING LIST OF CHANGES

SKIDMORE, OWINGS & MERRILL
NOV 04, 1991

ALL DRAWINGS ARE DATED NOV 04, 1991 AS BULLETIN No. 160

DRAWING	REVISION	DESCRIPTION OF CHANGES	REASON
TA -36	3	Added detailbox	1
		Added blow-up plan B	2
		Added detail C	2
		Added Notes #6 & #7	2
TA-37	3	Added detailbox	1
TA-44	6	Added detailbox	1
TA-336	5	Added detailbox	1
		Added blow-up plan B	2
TA-337	5	Added detailbox	1
A-200	6	Revised detail #4	2
A-201	6	Added elevations #23, #23A, #29 & #30	2
		Revised elevations #19, #20 & #24	2
A-218	6	Omit plan #9	1
		Revised plan #3	2
A-253	10	Revised detail #8	2
A-353	7	Omit detail #9	2
PC-36	8	Revised outlets at Women's Toilet 36-052	2
PC-37	6	Revised outlets at Women's Toilet 37-052	2

REASONS FOR CHANGE

1. COORDINATION OF DOCUMENTS
2. CHANGE IN SCOPE OF THE WORK
3. INFORMATION PREVIOUSLY ISSUED AS A FIELD SKETCH
4. CHANGE AS A RESULT OF A FIELD CONDITION
5. CHANGE AS A RESULT OF VALUE ENGINEERING

SALOMON BROTHER, [illegible] DMORE OWNINGS & MERRILL
DRAWING LIST OF CHANGES NOVEMBER 6, 1991

BULLETIN #160

ALL DRAWINGS ISSUED WITH THIS BULLETIN ARE DATED 11/6/91.

DRAWING NUMBER	REVISION NUMBER	DESCRIPTION	REASON FOR CHANGE
E-36	8	Added lighting fixtures and receptacle, relocated existing switches and removed existing receptacle in women's room on 36th and 37th floors. Added Notes 3 and 4.	2
TE-36	10	Relocated existing receptacle. Added Note 17.	2
TE-37	10	Relocated existing receptacle. Added Note 18.	2
TL-36	8	Relocated existing lighting switch. Added Note 8.	2
TL-37	9	Relocated existing lighting switch. Added Note 6.	2

SALOMON BROTHER, INC.
DRAWING LIST OF CHANGES

SKIDMORE OWINGS & MERRILL
NOVEMBER 6, 991

BULLETIN #160

ALL DRAWINGS ISSUED WITH THIS BULLETIN ARE DATED 11/6/91.

DRAWING NUMBER	REVISION NUMBER	DESCRIPTION	REASON FOR CHANGE
P-44	9	Added waste, vent and cold water piping to new water closet.	2
		Added note	2

SALOMON BROTHERS INC.
DOOR AND HARDWARE SCHEDULE
37TH FLOOR

SKIDMORE,OWINGS & MERRILL
November 1, 1989

REVISION NO	DATE	REVISION
	Nov 1, 1989	Issued for Tenant Floor 36 & 37
1	Dec 1, 1989	Coordinated for Floors 36 & 37
2	May 9, 1990	Issued for Bulletin No. 78
3	July 17, 1990	Issued for Bulletin No. 107
4	Nov 6, 1990	Issued for Bulletin No. 127
5	Nov 4, 1991	Issued for Bulletin No. 160

ROOM/ DOOR NO. <CODES>	DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
37-002 A LOBBY <276.605>	W:6'-0" H:7'-3 1/2" TH:2"	E:7A M:WD F:W-02	A203 WD W-02	J:15/A202 H:18/A202 S:3,5/A202 P:	2HFB	2LEC	4ACN	2CCD	SCC	2MDA MDC MDI	H: CARD READER/ELECTRO-MAGNETIC LOCK/EXIT H: SWITCH/MAGNETIC DOOR SWITCH. H: HDWE FINISH: BRIGHT BRONZE (ANSI 611)
37-002 B LOBBY [4] <LN.LA2>	W:6'-0" H:8'-6" TH:2"	E: 7/ M:WD F:W-02	A203 WD W-02	J:1E/A212 H:3C/A212 S:2A/A212* P:	2HFB	2LEC	4ACN	2CCC	SCC	2MDA MDC MDI	H: CARD READER/ELECTRO-MAGNETIC LOCK/EXIT H: SWITCH/MAGNETIC DOOR SWITCH. H: HDWE FINISH: BRIGHT BRONZE (ANSI 611) H: X POLISHED CHROME (ANSI 625).
37-003 A SER.LOBBY <163.LE>	W:6'-0' H:8'-3 1/2" TH:1 3/4"	E:C M:HM F:P-08	B HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	7HAB HAF	LBA LFE	AAA ABA	2CAA	2SAA	2MBA 2MDA	H: CARD READER/FAIL-SAFE ELECTRIC LOCK/ H: MAG DOOR SWITCH.
37-011 A M.E.R. <XH.556>	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:		LAM				MDA	D: PAINT EXISTING DOOR AND FRAME. H: MAGNETIC DOOR SWITCH.. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
37-012 A COPY RM. <B1.DE>	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LAD			SAA	3MBA	
37-020 A OFC.SUP. <B1.TS>	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LDQ		CAC	SAA	3MBA MDA	
37-021 A MAILROOM [5] <B1.DG>	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LAD		CAA	SAA	3MBA	
37-021 B MAILROOM <BM.53>	W:2'-0" H:7'-0" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LAI			SAA	3MBA	
37-022 A ELEC.CL. <XH.X1>	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:						MDA	D: PAINT EXISTING DOOR AND FRAME. H: MAGNETIC DOOR SWITCH.

ROOM/ DOOR NO. <CODES>		DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
37-023 SECUR.CL <XH.X2>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:						2MDA	D: PAINT EXISTING DOOR AND FRAME. H: MAGNETIC DOOR SWITCH..
37-030 STAIR <XB.ST>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:						MDA	D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET TRIM, TO MATCH H: SCHLAGE 01A x 625.
37-031 TEL.CL. <XB.551>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:		LAM				2MDA	D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
37-032 STAIR <XB.ST>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:						MDA	D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET TRIM, TO MATCH H: SCHLAGE 01A x 625.
37-033 TEL.CL. <XB.552>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:		LAM				MDA	D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
37-034 COMM. CL. <XH.551>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:		LAM				2MDA	D: PAINT EXISTING DOOR AND FRAME. H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
37-035 ELEC.CL. <XH.XS>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:						MDA	D: PAINT EXISTING DOOR AND FRAME. H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.

ROOM/ DOOR NO. <CODES>		DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS (S: special D: doortype H: hardware)
37-036 ELEC.CL. <XX.556>	A	W: H: TH:	E: M: F:		J: H: S: P:		LAM				MDA	D: EXISTING BASE BUILDING DOOR & FRAME D: TO REMAIN H: MAGNETIC DOOR SWITCH.. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
37-037 MED. CL. <MC.554>	A	W:4'-2" H:8'-3 1/2" TH:1 3/4"	E:C M:HM F:P-08	B HM P-08	J:8/A253 H:13/A253 S:S1/A253 P:	8HAB	LAI LFB	ABA		2SDA	2MBA	
37-043 COMM.CL. <XX.550>	A	W: H: TH:	E: M: F:		J: H: S: P:		LAM				2MDA	D: EXISTING BASE BUILDING DOOR & FRAME D: TO REMAIN H: MAGNETIC DOOR SWITCH..
37-050 EMR <XH.552>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:		LAM				MDA	D: PAINT EXISTING DOOR AND FRAME. H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
37-052A VESTIBULE <410.>	A	W: H: TH:	E: M: F:		J:8 SIM/A253 H: S: P:							D: RE-USE RELOCATED EXIST. DOOR, FRAME & D: HARDWARE FORMER DOOR 3 -052 A
37-052A VESTIBULE <413.545>	B	W:2'-6" VIF H:* TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LAI		CAB	SAA	3MBA	D: * MATCH HT. AT FORMER DOOR 37-052 A
37-054 JANITOR <XB.558>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:		LAI					D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
37-055 MECH. <414.552>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:							D: MATCH OR RE-USE EXISTING DOOR, FRAME D: & HARDWARE FORMER DOOR 37-055 A H: H: H: H:

ROOM/ DOOR NO. <CODES>		DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
37-056 FILES <B1.DC>	A	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LAD		CAB	SAA	3MBA	
37-060 STAIR <XB.ST>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:						MDA	D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: MAGNETIC DOOR SWITCH, H: REPLACE EXISTING LOCKSET TRIM, TO MATCH H: SCHLAGE 01A x 625.
37-061 COATS <XB.XB>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:							D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: *L9000 SERIES x 01A x 625 - FUNCTION TO* H: MATCH EXISTING.
37-062 COATS <XB.XB>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:							D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
37-063 ELEC.CL. <XH.552>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:		LAM				MDA	D: PAINT EXISTING DOOR AND FRAME. H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
37-064 M.E.R. <XB.XP>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:						2MDA	D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
37-065 COATS <273.CF>	A	W:6'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	8HAB	2LDP	2ACN		2SDA	2MBA	
37-066 ELEC <XB.551>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:		LAM				2MDA	D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.

ROOM/ DOOR NO. <CODES>	DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
37-067 A ELEC <XP.551>	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:		LAM				2MDA	D: PAINT EXIST.BASE BLDG DOOR & FRAME. H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
37-070 A VESTIBULE <XB.XB>	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:							D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
37-071 A WOMEN <XB.XB>	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:							D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
37-071 B WOMEN <XB.XB>	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:							D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
37-072 A VESTIBULE <XB.XB>	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:							D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
37-073 A TERMINAL <B1.DC>	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LAD		CAB	SAA	3MBA	
37-074 A OFC SUP [5] <B1.TS>	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LDQ		CAC	SAA	3MBA MDA	
37-080 A DISTR <B1.DC>	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LAD		CAB	SAA	3MBA	

ROOM/ DOOR NO. <CODES>		DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
37-081 BPA EQ <B1.DC>	A	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LAD		CAB	SAA	3MBA	
37-082 TERMINAL <B1.545>	A	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LAI		CAB	SAA	3MBA	
37-083 STORAGE <B1.DC>	A	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LAD		CAB	SAA	3MBA	
37-085 COPY <B1.DC>	A	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LAD		CAB	SAA	3MBA	
37-085 COPY <B1.DC>	B	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LAD		CAB	SAA	3MBA	
37-110 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-111 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-112 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-113 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION

ROOM/ DOOR NO. <CODES>		DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
37-114 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-115 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-116 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-117 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-120 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-121 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-122 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-123 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-124 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION

ROOM/ DOOR NO. <CODES>	DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
37-125 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-126 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-127 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-130 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-131 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-132 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-133 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-134 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-135 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION

ROOM/ DOOR NO. <CODES>		DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
37-136 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-137 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-140 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-141 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-142 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-143 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-144 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-150 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-151 OFC.SUP. <B1.TS>	A	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LDQ		CAC	SAA	3MBA MDA	

ROOM/ DOOR NO. <CODES>		DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS (S: special D: doortype H: hardware)
37-151 OFC.SUP. <B1.TS>	B	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LDQ		CAC	SAA	3MBA MDA	
37-152 CONFER. <B1.DC>	A	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LAD		CAB	SAA	3MBA	
37-153 ELEC CLO. <XH.552>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:		LAM				MDA	D: PAINT EXISTING DOOR AND FRAME. H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
37-160 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-161 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-162 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-163 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-164 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-165 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION

ROOM/ DOOR NO. <CODES>	DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
37-166 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-167 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-168 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-169 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-170 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-171 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-172 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-173 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-174 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION

ROOM/ DOOR NO. <CODES>		DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
37-175 OFFICE <B3,547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-176 OFFICE <B3,547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-177 OFFICE <B3,547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-180 OFFICE <B3,547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-181 OFFICE <B3,547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-182 OFFICE <B3,547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-183 OFFICE <B3,547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-184 OFFICE <B3,547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
37-190 OFFICE <B3,547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION

ROOM/ DOOR NO. <CODES>		DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
37-201	A	W:5'-7 3/4"	E:22*	22*	J:5/A214B	8HAB	LAA	ACB		2SAA	MEF	S: SEE SHEET A-216
CONFER.		H:8'-1"	M:WD	WD	H:12A/A214		LFA				2MFA	D: * SPECIAL VENEER IN RAISED DR PANELS
[4]		TH:1-3/4"	F:W-02	*W-02	S:							H: FLUSHBOLT AT HEAD ONLY.
<RR.R01>					P:							H: HEAD AND JAMB SEALS.
												H: HDWE FINISH: BRIGHT BRONZE (ANSI 611)
37-202	A	W:+-2'-7 1/8"	E:24*	24*	J:3/A214B	HFB	LAB			SCB		D: * SEE SHEET A-216
PHONE		H:8'-1"	M:WD	WD	H:4/A214					SDA		D: SPECIAL VENEER IN RAISED DOOR PANELS
[4]		TH:1-3/4"	F:W-02	W-02	S:							H: PRIVACY LOCK TO INCLUDE VISUAL
<PR.R03>					P:							H: OCCUPANCY INDICATOR.
												H: HEAD AND JAMB SEALS.
												H: HDWE FINISH: BRIGHT BRONZE (ANSI 611).
37-203	A	W:5'-7 3/4"	E:22*	22*	J:6/A214B	8HAB	LAA	ACB		2SAA	MEF	S: SEE SHEET A-216
CONFER.		H:8'-1"	M:WD	WD	H:12A/A214		LFA				2MFA	D: * SPECIAL VENEER IN RAISED DR PANELS
		TH:1-3/4"	F:W-02	*W-02	S:							H: FLUSHBOLT AT HEAD ONLY.
<307.R01>					P:							H: HEAD AND JAMB SEALS.
												H: HDWE FINISH: BRIGHT BRONZE (ANSI 611)
37-205	A	W:3'-1 1/8"	E:24*	24*	J:3/A214B	HFB	LDP	ACF		SDA		D: *SEE SHT A-216
CLOS		H:8'-1"	M:WD	WD	H:4/A214							D: SPECIAL VENEER IN RAISED DOOR PANEL
[5]		TH:1 3/4"	F:W-02	W-02	S:							
<61.30>					P:							
37-211	A	W:3'-2 1/2"	E:29**		J:**	HFB	LDP	ACF		SDA		D: * FIELD MEASURE (5 EQ PANELS)
CLOS		H:8'-6"	M:HM		H:**							D: ** SEE ELEV.29,A-213
[4]		TH:13/4"	F:P-08		S:S4/A253							
<C8.R05>					P:							
37-211	B	W:3'-2 1/2"	E:29**		J:**	HFB	LDP	ACF		SDA		D: * FIELD MEASURE (5 EQ PANELS)
CLOS		H:8'-6"	M:HM		H:**							D: ** SEE ELEV.29,A-213
[4]		TH:13/4"	F:P-08		S:S4/A253							
<C8.R05>					P:							
37-211	C	W:3'-2 1/2"	E:29**		J:**	HFB	LDP	ACF		SDA		D: * FIELD MEASURE (5 EQ PANELS)
CLOS		H:8'-6"	M:HM		H:**							D: ** SEE ELEV.29,A-213
[4]		TH:13/4"	F:P-08		S:S4/A253							
<C8.R05>					P:							
37-211	D	W:3'-2 1/2"	E:29**		J:**	HFB	LDP	ACF		SDA		D: * FIELD MEASURE (5 EQ PANELS)
CLOS		H:8'-6"	M:HM		H:**							D: ** SEE ELEV.29,A-213
[4]		TH:13/4"	F:P-08		S:S4/A253							
<C8.R05>					P:							

ROOM/ DOOR NO. <CODES>		DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
37-211	E	W:3'-2 1/2"	E:29**		J:**	HFB	LDP	ACF		SDA		D: * FIELD MEASURE (5 EQ PANELS)
CLOS		H:8'-6"	M:HM		H:**							D: ** SEE ELEV.29,A-213
[4]		TH:13/4"	F:P-08		S:S4/A253							
<C8.R05>					P:							
37-231	A	*W:4'-5"**	*E:C*		*J:1A/A214*	*2HFB*	*2LDP*	*2ACF*		*2SDA*		*D: * FIELD MEASURE*
COATS		H:8'-6"	M:WD		H:3A/A214							
[4]		TH:1 3/4"	F:W-01		S:S4/A253							
<CP.R07>					P:							
37-232	A	W:4'-5"*	E:C		J:1A/A214	2HFB	2LDP	2ACF		2SDA		D: * FIELD MEASURE
COATS		H:8'-6"	M:WD		H:3A/A214							
		TH:1 3/4"	F:W-01		S:S4/A253							
<CP.R07>					P:							

SALOMON BROTHERS INC.
DOOR AND HARDWARE SCHEDULE
36TH FLOOR

SKIDMORE,OWINGS & MERRILL
November 1, 1989

REVISION NO	DATE	REVISION
	Nov 1, 1989	Issued for Tenant Floor 36 & 37
1	Dec 1, 1989	Coordinated for Floors 36 & 37
2	May 9, 1990	Issued for Bulletin No. 78
3	July 17, 1990	Issued for Bulletin No. 107
4	Nov 6, 1990	Issued for Bulletin No. 127
5	Nov 4, 1991	Issued for Bulletin No. 160

ROOM/ DOOR NO. <CODES>		DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
36-002	A	W:6'-0"	E: 7/	A203	J:1E/A212	2HFB	2LEC	4ACN	2CCD	SCC	2MDA	H: CARD READER/ELECTRO-MAGNETIC LOCK/EXIT
LOBBY		H:8'-6"	M:WD	WD	H:3C/A212						MDC	H: SWITCH/MAGNETIC DOOR SWITCH.
		TH:2"	F:W-02	W-02	S:2A/A212*						MDI	H: HDWE FINISH: BRIGHT BRONZE (ANSI 611)
<LN.605>					P:							
36-002	B	W:6'-0"	E: 7/	A203	J:1E/A212	2HFB	2LEC	4ACN	2CCC	SCC	2MDA	H: CARD READER/ELECTRO-MAGNETIC LOCK/EXIT
LOBBY		H:8'-6"	M:WD	WD	H:3C/A212						MDC	H: SWITCH/MAGNETIC DOOR SWITCH.
[4]		TH:2"	F:W-02	W-02	S:2A/A212*						MDI	H: HDWE FINISH: BRIGHT BRONZE (ANSI 611)
<LN.LA2>					P:							H: X POLISHED CHROME (ANSI 625).
36-003	A	W:6'-0'	E:C	B	J:8/A253	7HAB	LBA	AAA	2CAA	2SAA	2MBA	H: CARD READER/FAIL-SAFE ELECTRIC LOCK/
SER.LOBBY		H:7'-0"	M:HM	HM	H:13/A253	HAF	LFE	ABA			2MDA	H: MAG DOOR SWITCH.
		TH:1 3/4"	F:P-08	P-08	S:S4/A253							
<C1.LE>					P:							
36-011	A	W:	E:		J:		LAM				MDA	D: PAINT EXISTING DOOR AND FRAME.
M.E.R.		H:	M:		H:							H: MAGNETIC DOOR SWITCH..
		TH:	F:P-08	P-08	S:							H: REPLACE EXISTING LOCKSET WITH SCHLAGE
<XH.556>					P:							H: L9000 SERIES x 01A x 625 - FUNCTION TO
												H: MATCH EXISTING.
36-012	A	W:3'-0"	E:B	A	J:8/A253	4HAB	LAI			SAA	3MBA	
COPY RM.		H:8'-3 1/2"	M:HM	HM	H:13/A253							
		TH:1 3/4"	F:P-08	P-08	S:S4/A253							
<B1.53>					P:							
36-019	A	W:4'-2"	E:C	B	J:8/A253	8HAB	LAI	ABA		2SDA	2MBA	
MED. CL.		H:8'-3 1/2"	M:HM	HM	H:13/A253		LFB					
		TH:1 3/4"	F:P-08	P-08	S:S1/A253							
<MC.554>					P:							
36-020	A	W:3'-0"	E:B	A	J:8/A253	4HAB	LDQ		CAC	SAA	3MBA	
OFC.SUP.		H:8'-3 1/2"	M:HM	HM	H:13/A253						MDA	
		TH:1 3/4"	F:P-08	P-08	S:S4/A253							
<B1.TS>					P:							
36-021	A	W:3'-0"	E:B	A	J:8/A253	4HAB	LDQ		CAA	SAA	3MBA	
MAILROOM		H:8'-3 1/2"	M:HM	HM	H:13/A253							
		TH:1 3/4"	F:P-08	P-08	S:S4/A253							
<B1.47>					P:							
36-021	B	W:2'-0"	E:B	A	J:8/A253	4HAB	LAI			SAA	3MBA	
MAILROOM		H:7'-0"	M:HM	HM	H:13/A253							
		TH:1 3/4"	F:P-08	P-08	S:S4/A253							
<BM.53>					P:							

ROOM/ DOOR NO. <CODES>	DOOR & FRAME SIZE	DOOR FRAM	DETAILS	HARDWARE HANG LOCK ACCY CLOS STOP MISC	REMARKS S: special D: doortype H: hardware
36-022 A ELEC.CL. <XH.556>	W: H: TH:	E: M: F:P-08 P-08	J: H: S: P:	LAM MDA	D: PAINT EXISTING DOOR AND FRAME. H: MAGNETIC DOOR SWITCH.. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
36-023 A SECUR.CL <XH.550>	W: H: TH:	E: M: F:P-08 P-08	J: H: S: P:	LAM 2MDA	D: PAINT EXISTING DOOR AND FRAME. H: MAGNETIC DOOR SWITCH..
36-030 A STAIR <XB.ST>	W: H: TH:	E: M: F:P-08 P-08	J: H: S: P:	MDA	D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET TRIM, TO MATCH H: SCHLAGE 01A x 625.
36-031 A TEL.CL. <XH.551>	W: H: TH:	E: M: F:P-08 P-08	J: H: S: P:	LAM 2MDA	D: PAINT EXISTING DOOR AND FRAME. H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
36-032 A STAIR <XB.ST>	W: H: TH:	E: M: F:P-08 P-08	J: H: S: P:	MDA	D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET TRIM, TO MATCH H: SCHLAGE 01A x 625.
36-033 A TEL.CL. <XH.552>	W: H: TH:	E: M: F:P-08 P-08	J: H: S: P:	LAM MDA	D: PAINT EXISTING DOOR AND FRAME. H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
36-034 A COMM CL <XH.551>	W: H: TH:	E: M: F:P-08 P-08	J: H: S: P:	LAM 2MDA	D: PAINT EXISTING DOOR AND FRAME. H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
36-035 A ELEC.CL. <XH.552>	W: H: TH:	E: M: F:P-08 P-08	J: H: S: P:	LAM MDA	D: PAINT EXISTING DOOR AND FRAME. H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.

ROOM/ DOOR NO. <CODES>		DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS (S: special D: doortype H: hardware)
36-037 ELEC.CL. <XH.552>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:		LAM				MDA	D: PAINT EXISTING DOOR AND FRAME. H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
36-043 COMM.CL. <XH.551>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:		LAM				2MDA	D: PAINT EXISTING DOOR AND FRAME. H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
36-050 SUPPLY <B1.545>	A	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LAI		CAB	SAA	3MBA	
36-051 PANTRY <C1.554>	A	W:6'-0' H:7'-0" TH:1 3/4"	E:C M:HM F:P-08	B HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	8HAB	LAI LFB	ABA		2SDA	2MBA	
36-052A VESTIBULE <410.>	A	W: H: TH:	E: M: F:		J:8 SIM/A253 H: S: P:							D: RE-USE RELOCATED EXIST. DOOR, FRAME & D: HARDWARE FORMER DOOR 36-052 A
36-052A VESTIBULE <411.545>	B	W:2'-6" VIF H:* TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LAI		CAB	SAA	3MBA	D: * MATCH HT. AT FORMER DOOR 36-052 A
36-054 JANITOR <XB.558>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:		LAI					D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
36-055 MECH. <412.552>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:		LAM				MDA	D: MATCH OR RE-USE EXISTING DOOR, FRAME D: & HARDWARE FORMER DOOR 36-055 A H: H: H: H:

ROOM/ DOOR NO. <CODES>	DOOR & FRAME SIZE	DOOR FRAM	DETAILS	HARDWARE HANG LOCK ACCY CLOS STOP MISC	REMARKS S: special D: doortype H: hardware
36-056 A STORAGE <B1.545>	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B A M:HM HM F:P-08 P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB LAI CAB SAA 3MBA	
36-060 A STAIR <XB.ST>	W: H: TH:	E: M: F:P-08 P-08	J: H: S: P:	MDA	D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET TRIM, TO MATCH H: SCHLAGE 01A x 625.
36-061 A COATS <XB.XB>	W: H: TH:	E: M: F:P-08 P-08	J: H: S: P:		D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
36-062 A COATS <XB.XB>	W: H: TH:	E: M: F:P-08 P-08	J: H: S: P:		D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
36-063 A ELEC.CL. <XB.552>	W: H: TH:	E: M: F:P-08 P-08	J: H: S: P:	LAM MDA	D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
36-064 A M.E.R. <XB.XP>	W: H: TH:	E: M: F:P-08 P-08	J: H: S: P:	2MDA	D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
36-065 A COATS [4] <XB.XB>	W: H: TH:	E: M: F:P-08 P-08	J: H: S: P:		D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.

ROOM/ DOOR NO. <CODES>	DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
36-066 A ELEC <XB.551>	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:		LAM				2MDA	D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
36-067 A ELEC <XB.551>	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:		LAM				2MDA	D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
36-070 A VESTIBULE <XB.XB>	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:							D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
36-071 A WOMEN <XB.XB>	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:							D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
36-071 B WOMEN <XB.XB>	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:							D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
36-072 A VESTIBULE <XB.XB>	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:							D: PAINT EXISTING BASE BUILDING DOOR & D: FRAME H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
36-073 A COPY <B1.545>	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LAI		CAB	SAA	3MBA	

ROOM/ DOOR NO. <CODES>		DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
36-073	B	W:3'-0"	E:B	A	J:8/A253	4HAB	LAI		CAB	SAA	3MBA	
COPY		H:8'-3 1/2"	M:HM	HM	H:13/A253							
		TH:1 3/4"	F:P-08	P-08	S:S4/A253							
<B1.545>					P:							
36-074	A	W:3'-0"	E:B	A	J:8/A253	4HAB	LAD		CAB	SAA	3MBA	
STORAGE		H:8'-3 1/2"	M:HM	HM	H:13/A253							
		TH:1 3/4"	F:P-08	P-08	S:S4/A253							
<B1.DC>					P:							
36-075	A	W:3'-0"	E:B	A	J:8/A253	4HAB	LAI		CAB	SAA	3MBA	
TERMINAL		H:8'-3 1/2"	M:HM	HM	H:13/A253							
		TH:1 3/4"	F:P-08	P-08	S:S4/A253							
<B1.545>					P:							
36-075	B	W:3'-0"	E:B	A	J:8/A253	4HAB	LAD		CAB	SAA	3MBA	
TERMINAL		H:8'-3 1/2"	M:HM	HM	H:13/A253							
		TH:1 3/4"	F:P-08	P-08	S:S4/A253							
<B1.DC>					P:							
36-076	A	W:3'-0"	E:B	A	J:8/A253	4HAB	LAD		CAB	SAA	3MBA	
VIEW'G RM		H:8'-3 1/2"	M:HM	HM	H:13/A253							
		TH:1 3/4"	F:P-08	P-08	S:S4/A253							
<B1.DC>					P:							
36-077	A	W:3'-0"	E:B	A	J:8/A253	4HAB	LAI		CAB	SAA	3MBA	
TERMINAL		H:8'-3 1/2"	M:HM	HM	H:13/A253							
		TH:1 3/4"	F:P-08	P-08	S:S4/A253							
<B1.545>					P:							
36-077	B	W:3'-0"	E:B	A	J:8/A253	4HAB	LAA		CAB	SAA	3MBA	
TERMINAL		H:8'-3 1/2"	M:HM	HM	H:13/A253							
		TH:1 3/4"	F:P-08	P-08	S:S4/A253							
<B1.494>					P:							
36-080	A	W:3'-0"	E:B	A	J:8/A253	4HAB	LAI		CAB	SAA	3MBA	
CONF		H:8'-3 1/2"	M:HM	HM	H:13/A253							
		TH:1 3/4"	F:P-08	P-08	S:S4/A253							
<B1.545>					P:							
36-081	A	W:3'-0"	E:B	A	J:8/A253	4HAB	LAI		CAB	SAA	3MBA	
CONF		H:8'-3 1/2"	M:HM	HM	H:13/A253							
		TH:1 3/4"	F:P-08	P-08	S:S4/A253							
<B1.545>					P:							

ROOM/ DOOR NO. <CODES>	DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
36-082 A CLOS [4] <CM.23>	W:6'-0" H:8'-6" TH:1-3/4"	E:C M:WD F:P-08		J:1A,15/A212 H:3E/A212 S:2A/A212 P:	8HAA	2LDP	2ACF				D: POCKET FOR MOVABLE WALL; HINGED MTG D: STILE PER DET.14,15/A212.
36-083 A LIBRARY <B1.545>	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LAI		CAB	SAA	3MBA	
36-084 A FILES <B1.545>	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LAI		CAB	SAA	3MBA	
36-110 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-111 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-112 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-113 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-114 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-115 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION

ROOM/ DOOR NO. <CODES>		DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
36-116 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-117 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-120 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-121 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-122 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-123 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-124 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-125 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-126 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION

ROOM/ DOOR NO. <CODES>		DOOR & FRAME SIZE	DOOR	FRAM		DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
36-127 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *		J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-130 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *		J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-131 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *		J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-132 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *		J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-133 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *		J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-134 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *		J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-135 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *		J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-136 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *		J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-137 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *		J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION

ROOM/ DOOR NO. <CODES>		DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
36-140 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-141 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-142 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-143 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-144 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-150 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-151 OFC.SUP. <B1.TS>	A	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LDQ		CAC	SAA	3MBA MDA	
36-151 OFC.SUP. <B1.TS>	B	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LDQ		CAC	SAA	3MBA MDA	
36-152 CONFER. <B1.545>	A	W:3'-0" H:8'-3 1/2" TH:1 3/4"	E:B M:HM F:P-08	A HM P-08	J:8/A253 H:13/A253 S:S4/A253 P:	4HAB	LAI		CAB	SAA	3MBA	

ROOM/ DOOR NO. <CODES>		DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
36-153 ELEC CLO. <XH.552>	A	W: H: TH:	E: M: F:P-08	P-08	J: H: S: P:		LAM				MDA	D: PAINT EXISTING DOOR AND FRAME. H: MAGNETIC DOOR SWITCH. H: REPLACE EXISTING LOCKSET WITH SCHLAGE H: L9000 SERIES x 01A x 625 - FUNCTION TO H: MATCH EXISTING.
36-160 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-161 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-162 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-163 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-164 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-165 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-166 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-167 OFFICE <B3.547>	A	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION

ROOM/ DOOR NO. <CODES>	DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
36-168 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-169 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-170 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-171 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-172 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-173 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-174 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-175 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
36-176 A OFFICE <B3.547>	W:3'-0" H:8'-3 3/4" TH:2"	E:B M:WD F:W-01	* * *	J:9/A258 H:5/A258 S:5/A258 P:	HFB	LAI		CBB	SAA SCB		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION

ROOM/ DOOR NO. <CODES>		DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
36-177	A	W:3'-0"	E:B	*	J:9/A258	HFB	LAI		CBB	SAA		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
OFFICE		H:8'-3 3/4"	M:WD	*	H:5/A258					SCB		
		TH:2"	F:W-01	*	S:5/A258							
<B3.547>					P:							
36-180	A	W:3'-0"	E:B	*	J:9/A258	HFB	LAI		CBB	SAA		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
OFFICE		H:8'-3 3/4"	M:WD	*	H:5/A258					SCB		
		TH:2"	F:W-01	*	S:5/A258							
<B3.547>					P:							
36-181	A	W:3'-0"	E:B	*	J:9/A258	HFB	LAI		CBB	SAA		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
OFFICE		H:8'-3 3/4"	M:WD	*	H:5/A258					SCB		
		TH:2"	F:W-01	*	S:5/A258							
<B3.547>					P:							
36-182	A	W:3'-0"	E:B	*	J:9/A258	HFB	LAI		CBB	SAA		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
OFFICE		H:8'-3 3/4"	M:WD	*	H:5/A258					SCB		
		TH:2"	F:W-01	*	S:5/A258							
<B3.547>					P:							
36-183	A	W:3'-0"	E:B	*	J:9/A258	HFB	LAI		CBB	SAA		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
OFFICE		H:8'-3 3/4"	M:WD	*	H:5/A258					SCB		
		TH:2"	F:W-01	*	S:5/A258							
<B3.547>					P:							
36-184	A	W:3'-0"	E:B	*	J:9/A258	HFB	LAI		CBB	SAA		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
OFFICE		H:8'-3 3/4"	M:WD	*	H:5/A258					SCB		
		TH:2"	F:W-01	*	S:5/A258							
<B3.547>					P:							
36-190	A	W:3'-0"	E:B	*	J:9/A258	HFB	LAI		CBB	SAA		D: * SEE SPEC. FOR DEMOUNTABLE PARTITION
OFFICE		H:8'-3 3/4"	M:WD	*	H:5/A258					SCB		
		TH:2"	F:W-01	*	S:5/A258							
<B3.547>					P:							
36-201	A	W:5'-7 3/4"	E:27*	27*	J:5/A214B(sim)	2HFB	2LDP	2ACF		2SDA		S: HARDWARE FINISH: OIL RUBBED BRONZE,
COAT		H:8'-1"	M:WD	WD	H:3/A214							S: (ANSI 613).
		TH:1-3/4"	F:W-02*	W-02	S:							D: * SPECIAL VENEER IN RAISED DR PANELS
<306.R07>					P:							
36-202	A	W:5'-7 3/4"	E:27*	27*	J:5/A214B(sim)	8HAB	LAA	ACB		2SAA	MEF	S: SEE SHEET A-216
CONFER.		H:8'-1"	M:WD	WD	H:3/A214		LFA				2MFA	D: * SPECIAL VENEER IN RAISED DR PANELS
		TH:1-3/4"	F:W-02*	W-02	S:							H: FLUSHBOLT AT HEAD ONLY.
<306.R01>					P:							H: HEAD AND JAMB SEALS.
												H: HDWE FINISH: BRIGHT BRONZE (ANSI 611)

ROOM/ DOOR NO. <CODES>		DOOR & FRAME SIZE	DOOR	FRAM	DETAILS	HARDWARE HANG	LOCK	ACCY	CLOS	STOP	MISC	REMARKS S: special D: doortype H: hardware
36-211 COATS [4] <CP.R07>	A	W:4'-5"* H:8'-6" TH:1 3/4"	E:C M:WD F:W-01		J:1A/A214 H:3A/A214 S:S4/A253 P:	2HFB	2LDP	2ACF		2SDA		D: * FIELD MEASURE
36-212 COATS [4] <CP.R07>	A	W:4'-5"* H:8'-6" TH:1 3/4"	E:C M:WD F:W-01		J:1A/A214 H:3A/A214 S:S4/A253 P:	2HFB	2LDP	2ACF		2SDA		D: * FIELD MEASURE
36-231 COAT [4] <C8.R05>	A	W:3'-2 1/2" H:8'-6" TH:13/4"	E:29** M:HM F:P-08		J:** H:** S:S4/A253 P:	HFB	LDP	ACF		SDA		D: * FIELD MEASURE (5 EQ PANELS) D: ** SEE ELEV.29,A-213
36-231 COAT [4] <C8.R05>	B	W:3'-2 1/2" H:8'-6" TH:13/4"	E:29** M:HM F:P-08		J:** H:** S:S4/A253 P:	HFB	LDP	ACF		SDA		D: * FIELD MEASURE (5 EQ PANELS) D: ** SEE ELEV.29,A-213
36-231 COAT [4] <C8.R05>	C	W:3'-2 1/2" H:8'-6" TH:13/4"	E:29** M:HM F:P-08		J:** H:** S:S4/A253 P:	HFB	LDP	ACF		SDA		D: * FIELD MEASURE (5 EQ PANELS) D: ** SEE ELEV.29,A-213
36-231 COAT [4] <C8.R05>	D	W:3'-2 1/2" H:8'-6" TH:13/4"	E:29** M:HM F:P-08		J:** H:** S:S4/A253 P:	HFB	LDP	ACF		SDA		D: * FIELD MEASURE (5 EQ PANELS) D: ** SEE ELEV.29,A-213
36-231 COAT [4] <C8.R05>	E	W:3'-2 1/2" H:8'-6" TH:13/4"	E:29** M:HM F:P-08		J:** H:** S:S4/A253 P:	HFB	LDP	ACF		SDA		D: * FIELD MEASURE (5 EQ PANELS) D: ** SEE ELEV.29,A-213

SALOMON BROTHERS INC.
ROOM FINISH SCHEDULE
37TH FLOOR

SKIDMORE,OWINGS & MERRILL
November 1, 1989

REVISION NO	DATE	REVISION
	Nov 1, 1989	Issued for Tenant Floors 36 & 37
1	Dec 1, 1989	Coordinated for Floors 36 & 37
2	May 9, 1990	Issued for Bulletin No. 78
3	Oct 26, 1990	Issued for Bulletin No. 125
4	Nov 04, 1991	Issued for Bulletin No. 160

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
37-002 LOBBY	CONC AF-01	CFS2 C-1	WD	W-02*	W-02	*	W-02	*	W-02	*	W-02	*	GW01	P-02	* See sheet A-202
<LPE>													8'-6"		
37-003 SER.LOBBY	CONC CONC AF-01	VCT-2 CFS2 C-2	GW01 GW01	VB-1 VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		Carpet/access floor; non-slip surface on ramp (see spec.sect.10270); VCT/slab
<LSR>													8'-6"		
37-010 CORRIDOR	CONC AF-01	CFS2 C-2	GW01	VB-2					GW01	VWC-1	GW01	VWC-1	ACT-1 GW01	P-02	
<HAL>													8'-6"		
37-011 M.E.R.	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*EXISTING CONSTRUCTION
<XX>															
37-012 COPY RM.	CONC AF-01	CFS2 C-2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GL	*	ACT-1		* P-08 on soffit;column & convect. cover
<CPW>													8'-6"		
37-020 OFC.SUP.	CONC AF01	CFS2 PL-1	GW01	VB-1	GW01	P-07	GW01	P-07	GW01	P-07	GW01	P-07	GW01 *	P-02	* VARIES SEE CLG PLAN DTL.
<TS>															
37-021 MAILROOM	CONC AF-01	CFS2 C-2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		
<SUP>													8'-6"		
37-022 ELEC.CL.	CONC AF-01	CFS2 PL-1	GW01	VB-1											See base bldg modifications for other finishes
<UCL>															
37-023 SECUR.CL	CONC AF-01	CFS2 PL-1	GW01	VB-1											See base bldg modifications for other finishes
<UCL>															

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
37-030 STAIR															EXISTING STAIR.
<STR>															
37-031 TEL.CL.	CONC AF-01	CFS2 PL-1	GW01	VB-1											See base bldg modifications for other finishes
<UCL>															
37-032 STAIR															EXISTING STAIR.
<STR>															
37-033 TEL.CL.	CONC AF-01	CFS2 PL-1	GW01	VB-1											See base bldg modifications for other finishes
<UCL>															
37-034 COMM. CL.	CONC AF-01	CFS2 PL-1	GW01	VB-1											See base bldg modifications for other finishes
<UCL>															
37-035 ELEC.CL.	CONC AF-01	CFS2 PL-1	GW01	VB-1											See base bldg modifications for other finishes
<UCL>															
37-036 ELEC.CL.	CONC AF-01	CFS2 PL-1	GW01	VB-1											See base bldg modifications for other finishes
<UCL>															
37-037 MED. CL.	CONC AF-02	CFS2 C-2	GW01	VB-2	GW01	P-08	GW01	P-08	GW01	P-08	GW01	P-08	GW01	P-02	
<MC>													8'-6"		
37-043 COMM.CL.	CONC AF-01	CFS2 PL-1	GW01	VB-1											See base bldg modifications for other finishes
<UCL>															

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
37-050 EMR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*EXISTING CONSTRUCTION
<XX>															
37-052A VESTIBULE	CONC AF-02	CFS2 C-02	GW01	VB-2	GW01	P-##	GW01	P-##	GW01	P-##	GW01	P-##	*	*	* SEE TA-33.7 # MATCH EXIST. PAINT AT FORMER VESTIBULE 37-053
<752>															
37-054 JANITOR	CONC AF-01	CFS2 PL-1	GW01	VB-1											See base bldg modifications for other finishes
<UCL>															
37-055 MECH.	*	*	*	*	*	*	GW01	**	*	*	*	*	*	*	*EXISTING CONSTRUCTION **MATCH EXISTING PAINT
<754>															
37-056 FILES	CONC AF-01	CFS2 C-2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		
<SUP>													8'-6"		
37-060 STAIR															EXISTING STAIR.
<STR>															
37-061 COATS	CONC AF-02	CFS2 C-1	GW01	VB-2	GW01	P-08	GW01	P-08	GW01	P-08	GW01	P-08	ACT-1		coat rod & hat shelf (PL-05)
<CLC>													8'-6"		
37-062 COATS	CONC AF-02	CFS2 C-1	GW01	VB-2	GW01	P-08	GW01	P-08	GW01	P-08	GW01	P-08	ACT-1		coat rod & hat shelf (PL-05)
<CLC>													8'-6"		
37-063 ELEC.CL.	CONC AF-01	CFS2 PL-1	GW01	VB-1											See base bldg modifications for other finishes
<UCL>															

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
37-064 M.E.R. <XX>	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*EXISTING CONSTRUCTION
37-065 COATS <CLC>	CONC AF-02	CFS2 C-1	GW01	VB-2	GW01	P-08	GW01	P-08	GW01	P-08	GW01	P-08	ACT-1 8'-6"		coat rod & hat shelf (PL-05)
37-066 ELEC <XX>	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*EXISTING CONSTRUCTION
37-067 ELEC <XX>	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*EXISTING CONSTRUCTION
37-070 VESTIBULE <XX>	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*EXISTING CONSTRUCTION
37-071 WOMEN <XX>	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*EXISTING CONSTRUCTION
37-072 VESTIBULE <XX>	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*EXISTING CONSTRUCTION
37-073 TERMINAL <SUP>	CONC AF-01	CFS2 C-2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1 8'-6"		
37-074 OFC SUP <TS>	CONC AF01	CFS2 PL-1	GW01	VB-1	GW01	P-07	GW01	P-07	GW01	P-07	GW01	P-07	GW01 *	P-02	* VARIES SEE CLG PLAN DTL.

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
37-080	CONC	CFS2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		
DISTR	AF-01	C-2													
<SUP>													8'-6"		
37-081	CONC	CFS2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		
BPA EQ	AF-01	C-2													
<SUP>													8'-6"		
37-082	CONC	CFS2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		
TERMINAL	AF-01	C-2													
<SUP>													8'-6"		
37-083	CONC	CFS2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		
STORAGE	AF-01	C-2													
<SUP>													8'-6"		
37-084	CONC	CFS2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		
OFFICE	AF-01	C-2													
<SUP>													8'-6"		
37-085	CONC	CFS2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		
COPY	AF-01	C-2													
<SUP>													8'-6"		
37-110	CONC	CFS2	GW01	VB-2	GL	*	GW01	VWC-1	GW01	VWC-1	GL	*	ACT-1		*:P-08 on soffit & convec. cover
OFFICE	AF-01		M	P-01											*:VWC-1 on column enclosure
<688>													8'-6"		
37-111	CONC	CFS2	GW01	VB-2	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-112	CONC	CFS2	GW01	VB-2	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
37-113	CONC	CFS2	GW01	VB-2	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-114	CONC	CFS2	GW01	VB-2	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-115	CONC	CFS2	GW01	VB-2	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-116	CONC	CFS2	GW01	VB-2	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-117	CONC	CFS2	GW01	VB-2	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-120	CONC	CFS2	GW01	VB-2	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-121	CONC	CFS2	GW01	VB-2	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-122	CONC	CFS2	GW01	VB-2	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-123	CONC	CFS2	GW01	VB-2	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
37-124 OFFICE	CONC AF-01	CFS2 C-2	GW01 M	VB-2 P-01	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover ** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-125 OFFICE	CONC AF-01	CFS2 C-2	GW01 M	VB-2 P-01	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover ** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-126 OFFICE	CONC AF-01	CFS2 C-2	GW01 M	VB-2 P-01	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover ** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-127 OFFICE	CONC AF-01	CFS2 C-2	GW01 M	VB-2 P-01	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover ** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-130 OFFICE	CONC AF-01	CFS2 C-2	GW01 M	VB-2 P-01	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover ** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-131 OFFICE	CONC AF-01	CFS2 C-2	GW01 M	VB-2 P-01	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover ** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-132 OFFICE	CONC AF-01	CFS2 C-2	GW01 M	VB-2 P-01	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover ** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-133 OFFICE	CONC AF-01	CFS2 C-2	GW01 M	VB-2 P-01	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover ** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-134 OFFICE	CONC AF-01	CFS2 C-2	GW01 M	VB-2 P-01	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover ** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
37-135 OFFICE	CONC AF-01	CFS2 C-2	GW01 M	VB-2 P-01	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover ** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-136 OFFICE	CONC AF-01	CFS2 C-2	GW01 M	VB-2 P-01	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover ** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-137 OFFICE	CONC AF-01	CFS2 C-2	GW01 M	VB-2 P-01	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover ** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-140 OFFICE	CONC AF-01	CFS2 C-2	GW01 M	VB-2 P-01	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover ** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-141 OFFICE	CONC AF-01	CFS2 C-2	GW01 M	VB-2 P-01	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover ** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-142 OFFICE	CONC AF-01	CFS2 C-2	GW01 M	VB-2 P-01	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover ** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-143 OFFICE	CONC AF-01	CFS2 C-2	GW01 M	VB-2 P-01	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover ** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-144 OFFICE	CONC AF-01	CFS2 C-2	GW01 M	VB-2 P-01	GL	*	GL	**	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cover ** P-01 ON METAL FRAMES AND BASE
<FCN>													8'-6"		
37-150 OFFICE	CONC AF-01	CFS2	GW01 M	VB-2 P-01	GL	*	GW01	VWC-1	GL	*	GW01	VWC-1	ACT-1		*:P-08 on soffit & convec. cover *:VWC-1 on column enclosure
<689>													8'-6"		

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
37-151	CONC	CFS2	GW01	VB-1	GW01	P-07	GW01	P-07	GW01	P-07	GW01	P-07	GW01	P-02	* VARIES SEE CLG PLAN DTL.
OFC.SUP.	AF01	PL-1											*		
<TS>															
37-152	CONC	CFS2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GL		GW01	VWC-1	ACT-1		
CONFER.	AF-02	C-2	M	P-01					M	P-01					
<MTB>													8'-6"		
37-153	CONC	CFS2	GW01	VB-1											See base bldg modifications
ELEC CLO.	*AF-01*	*PL-1*													*for other finishes*
<UCL>															
37-160	CONC	CFS2	GW01	VB-2	GW01	VWC-1	GL	*	GL	*	GW01	VWC-1	ACT-1		* P-08 on soffit & convector cover
OFFICE	AF-02	C-2	M	P-01											* VWC-1 on column enclosure
<693>													8'-6"		
37-161	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		
37-162	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		
37-163	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		
37-164	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		
37-165	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
37-166	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		
37-167	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		
37-168	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		
37-169	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		
37-170	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		
37-171	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		
37-172	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		
37-173	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		
37-174	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
37-175	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		
37-176	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		
37-177	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		
37-180	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		
37-181	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		
37-182	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		
37-183	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		
37-184	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 ON SOFFIT;COLUMN & CONVECTOR
OFFICE	AF-01	C-2	M	P-01											** P-01 ON METAL FRAMES & BASE
<FCS>													8'-6"		
37-190	CONC	CFS2	GW01	VB-2	GW01	VWC-1	GL	*	GW01	VWC-1	GL	*	ACT-1		* P-08 on soffit & convector cover
OFFICE	AF-02	C-2	M	P-01											* VWC-1 on column enclosure
<690>													8'-6"		

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
37-200	CONC	CFS2	W-03		GW01	F-02	GW01	F-02	W-02	*	W-02	F-02	GW01	P-02	SEE SHEET A-214, A-216
RECEPTN	AF-02	C-1					W-02	*				*			*8'-6" AND 7'-4" AT SOFFIT
															* Wood trim (W-03)
<RCP>													*		
37-201	CONC	CFS2	W-03		GW01	F-02	GW01	F-02	GW01	F-02	GW01	F-02	GW01	P-02	* Wood trim; see sht. A-213, A-214
CONFER.	AF-01	C-1			W-03	*	W-03	*	W-03	*	W-03	*			
<MTM>													8'-6"		
37-203	CONC	CFS2	W-03		GW01	F-02	GW01	F-02	GW01	F-02	GW01	F-02	GW01	P-02	* Wood trim; see sht. A-213, A-214
CONFER.	AF-01	C-1			W-03	*	W-03	*	W-03	*	W-03	*			
<MTM>													8'-6"		
37-204	CONC	CFS2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	P-02	
HALL	AF-01	C-1													
<HAN>													7'-4"		
37-205	CONC	CFS2	GW01	VB-2	GW01	P-08	GW01	P-08	GW01	P-08	GW01	P-08	GW01	P-02	coat rod & hat shelf PL-05
CLOS	AF-02	C-1													
<CLR>													8'-6"		
37-206	CONC	CFS2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	P-02	
HALL	AF-01	C-1													
<HAN>													8'-6"		
37-210	CONC	CFS2	GW01	VB-2	GL	**	GW01	VWC-1		*		*	ACT-1		*P-08 on soffit;column & convector cover
OPEN AREA	AF-01	C-2	M	P-01											** P-01 on metal frames and base
<FLN>													8'-6"		
37-211	CONC	CFS2	GW01	VB-2	GW01	P-08	GW01	P-08	GW01	P-08	GW01	P-08	ACT-1		coat rod & hat shelf (PL-05).
CLOS	AF-02	C-2													SEE DETAIL 7/A-212
<CLF>													8'-6"		
37-220	CONC	CFS2	GW01	VB-2	GL	**	GW01	VWC-1		*		*	ACT-1		*P-08 on soffit;column & convector cover
OPEN AREA	AF-01	C-2	M	P-01											** P-01 on metal frames and base
<FLN>													8'-6"		

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
37-230	CONC	CFS2	GW01	VB-2	GL	**	GW01	VWC-1		*		*	ACT-1		*P-08 on soffit;column & convector cover
OPEN AREA	AF-01	C-2	M	P-01											** P-01 on metal frames and base
<FLN>													8'-6"		
37-231	CONC	CFS2	GW01	VB-2	GW01	P-08	GW01	P-08	GW01	P-08	GW01	P-08	ACT-1		coat rod & hat shelf (PL-05).
COATS	AF-02	C-2													SEE DETAIL 7/A-212
<CLF>													8'-6"		
37-232	CONC	CFS2	GW01	VB-2	GW01	P-08	GW01	P-08	GW01	P-08	GW01	P-08	ACT-1		coat rod & hat shelf (PL-05).
COATS	AF-02	C-2													SEE DETAIL 7/A-212
<CLF>															
37-240	CONC	CFS2	GW01	VB-2	GL	**	GW01	VWC-1		*		*	ACT-1		*P-08 on soffit;column & convector cover
OPEN AREA	AF-01	C-2	M	P-01											** P-01 on metal frames and base
<FLN>													8'-6"		
37-250	CONC	CFS2	GW01	VB-2		*		*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on gyp.board soffit.
OPEN AREA	AF-02	C-2											GW01	P-02	
<FLB>													8'-6"		
37-260	CONC	CFS2	GW01	VB-2	GW01	VWC-1	GL	**	GL	*		*	ACT-1		* P-08 on soffit;column & convector cov
OPEN AREA	AF-02	C-2	M	P-01											** P-01 on metal frames and base
<FLS>													8'-6"		
37-270	CONC	CFS2	GW01	VB-2	GW01	VWC-1	GL	**	GL	*		*	ACT-1		* P-08 on soffit;column & convector cov
OPEN AREA	AF-02	C-2	M	P-01											** P-01 on metal frames and base
<FLS>													8'-6"		
37-280	CONC	CFS2	GW01	VB-2	GW01	VWC-1	GL	**	GL	*		*	ACT-1		* P-08 on soffit;column & convector cov
OPEN AREA	AF-02	C-2	M	P-01											** P-01 on metal frames and base
<FLS>													8'-6"		
37-052 WOMEN	*	*	* GW01	* VB-1	*	*	* GW01	* **	*	*	* GW01	* **	*	*	* EXISTING CONSTRUCTION * MATCH EXIST. PAINT

SALOMON BROTHERS INC.
ROOM FINISH SCHEDULE
36TH FLOOR

SKIDMORE,OWINGS & MERRILL
November 1, 1989

REVISION NO	DATE	REVISION
	Nov 1, 1989	Issued for Tenant Floors 36 & 37
1	Dec 1, 1989	Coordinated for Floors 36 & 37
2	May 9, 1990	Issued for Bulletin No. 78
3	Oct 26, 1990	Issued for Bulletin No. 125
4	Nov 04, 1991	Issued for Bulletin No. 160

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
36-002 LOBBY	CONC AF-02 RM-8	CFS2 C-1	M	P-04	W-02	*	W-02	*	W-02	*	W-02	*	GW01	P-02	* See sheet A-202
<LPER>													8'-6"		
36-003 SER.LOBBY	CONC CONC AF-02 RM-8	VCT-2 CFS2 C-2	GW01 GW01	VB-1 VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		Carpet/access floor; non-slip surface on ramp (see spec.sect.10270); VCT/slab
<LSRR>													8'-6"		
36-010 CORRIDOR	CONC AF-01 RM-8	CFS2 C-2	GW01	VB-2					GW01	VWC-1	GW01	VWC-1	ACT-1		
<HALR>													8'-6"		
36-011 M.E.R.	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*EXISTING CONSTRUCTION
<XX>													8'-6"		
36-012 COPY RM.	CONC AF-02 RM-8	CFS2 C-2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GL	*	ACT-1		* P-08 on soffit;column & convect. cover
<CPWR>													8'-6"		
36-019 MED. CL.	CONC AF-02 RM-8	CFS2 C-2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	P-02	
<MCR>													8'-6"		
36-020 OFC.SUP.	CONC AF01 RM-8	CFS2 PL-1	GW01	VB-1	GW01	P-07	GW01	P-07	GW01	P-07	GW01	P-07	GW01	P-02	* VARIES SEE CLG PLAN DTL.
<TSR>															
36-021 MAILROOM	CONC AF-02 RM-8	CFS2 C-2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		
<SUPR>													8'-6"		
36-022 ELEC.CL.	CONC AF-01 RM-8	CFS2 PL-2	GW01	VB-1											See base bldg modifications for other finishes
<UCLR>															

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
36-023 SECUR.CL <UCLR>	CONC AF-01 RM-8	CFS2 PL-2	GW01	VB-1											See base bldg modifications for other finishes
36-030 STAIR <STR>													8'-6"		EXISTING STAIR.
36-031 TEL.CL. <UCLR>	CONC AF-01 RM-8	CFS2 PL-2	GW01	VB-1											See base bldg modifications for other finishes
36-032 STAIR <STR>													8'-6"		EXISTING STAIR.
36-033 TEL.CL. <UCLR>	CONC AF-01 RM-8	CFS2 PL-2	GW01	VB-1											See base bldg modifications for other finishes
36-034 COMM CL <UCLR>	CONC AF-01 RM-8	CFS2 PL-2	GW01	VB-1											See base bldg modifications for other finishes
36-035 ELEC.CL. <UCLR>	CONC AF-01 RM-8	CFS2 PL-2	GW01	VB-1											See base bldg modifications for other finishes
36-037 ELEC.CL. <UCLR>	CONC AF-01 RM-8	CFS2 PL-2	GW01	VB-1											See base bldg modifications for other finishes
36-043 COMM.CL. <UCLR>	CONC AF-01 RM-8	CFS2 PL-2	GW01	VB-1											See base bldg modifications for other finishes

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
36-050 SUPPLY	CONC AF-02 RM-8	CFS2 C-2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		
<SUPR>													8'-6"		
36-051 PANTRY	CONC RM-8	VCT-2	GW01	VB-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-2		
<PNR>													8'-6"		
36-052A VESTIBULE	CONC AF-02	CFS2 C-02	GW01	VB-2	GW01	P-**	GW01	P-**	GW01	P-**	GW01	P-**	*	*	* SEE TA-336 ** MATCH EXIST. PAINT AT FORMER VESTIBULE 36-053
<752>													*		
36-054 JANITOR	CONC AF-01 RM-8	CFS2 PL-2	GW01	VB-1											See base bldg modifications for other finishes
<UCLR>															
36-055 MECH.	*	*	*	*	*	*	GW01	**	*	*	*	*	*	*	*EXISTING CONSTRUCTION **MATCH EXISTING PAINT
<754>															
36-056 STORAGE	CONC AF-02 RM-8	CFS2 C-2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		
<SUPR>													8'-6"		
36-060 STAIR															*EXISTING STAIR.*
<STR>															
36-061 COATS	CONC AF-02 RM-8	CFS2 C-1	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		coat rod & hat shelf (PL-05)
<CLCR>													8'-6"		
36-062 COATS	CONC AF-02 RM-8	CFS2 C-1	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		coat rod & hat shelf (PL-05)
<CLCR>													8'-6"		

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		*Base*		*North*		*South*		*East*		*West*		*Ceiling*		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
36-063 ELEC.CL.	CONC AF-01 RM-8	CFS2 PL-2	GW01	VB-1											See base bldg modifications for other finishes
<UCLR>															
36-064 M.E.R.	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*EXISTING CONSTRUCTION
<XX>															
36-065 COATS	CONC AF-02 RM-8	CFS2 C-1	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		coat rod & hat shelf (PL-05)
<CLCR>													8'-6"		
36-066 ELEC	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*EXISTING CONSTRUCTION
<XX>															
36-067 ELEC	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*EXISTING CONSTRUCTION
<XX>															
36-070 VESTIBULE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*EXISTING CONSTRUCTION
<XX>															
36-071 WOMEN	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*EXISTING CONSTRUCTION
<XX>															
36-072 VESTIBULE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*EXISTING CONSTRUCTION
<XX>															
36-073 COPY	CONC AF-02 RM-8	CFS2 C-2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		
<SUPR>													8'-6"		

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
36-074 STORAGE	CONC AF-02 RM-8	CFS2 C-2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		
<SUPR>													8'-6"		
36-075 TERMINAL	CONC AF-02 RM-8	CFS2 C-2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		
<SUPR>															
36-076 VIEW'G RM	CONC AF-02 RM-8	CFS2 C-2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		
<SUPR>													8'-6"		
36-077 TERMINAL	CONC AF-02 RM-8	CFS2 C-2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		
<SUPR>													8'-6"		
36-080 CONF	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GW01	VWC-1	GW01	VWC-1	MV'BL WALL	VWC-1	GW01	VWC-1	ACT-1		
<MTER>													8'-6"		
36-081 CONF	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	MV'BL WALL	VWC-1	ACT-1		
<MTWR>													8'-6"		
36-082 CLOS	CONC AF-02 RM-8	CFS2 C-1	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		coat rod & hat shelf (PL-05)
<CLCR>													8'-6"		
36-083 LIBRARY	CONC AF-02 RM-8	CFS2 C-2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		
<SUPR>													8'-6"		
36-084 FILES	CONC AF-02 RM-8	CFS2 C-2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		
<SUPR>													8'-6"		

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
36-110 OFFICE	CONC AF-01	CFS2	GW01 M	VB-2 P-01	GL	*	GW01	VWC-1	GW01	VWC-1	GL	*	ACT-1		*:P-08 on soffit & convec. cover *:VWC-1 on column enclosure
<688>													8'-6"		
36-111 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov **:P-01 on metal frames and base.
<FCNR>													8'-6"		
36-112 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov **:P-01 on metal frames and base.
<FCNR>													8'-6"		
36-113 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov **:P-01 on metal frames and base.
<FCNR>													8'-6"		
36-114 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov **:P-01 on metal frames and base.
<FCNR>													8'-6"		
36-115 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov **:P-01 on metal frames and base.
<FCNR>													8'-6"		
36-116 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov **:P-01 on metal frames and base.
<FCNR>															
36-117 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov **:P-01 on metal frames and base.
<FCNR>													8'-6"		
36-120 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov **:P-01 on metal frames and base.
<FCNR>													8'-6"		

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
36-121 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov **:P-01 on metal frames and base.
<FCNR>													8'-6"		
36-122 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov **:P-01 on metal frames and base.
<FCNR>													8'-6"		
36-123 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov **:P-01 on metal frames and base.
<FCNR>													8'-6"		
36-124 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov **:P-01 on metal frames and base.
<FCNR>													8'-6"		
36-125 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov **:P-01 on metal frames and base.
<FCNR>													8'-6"		
36-126 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov **:P-01 on metal frames and base.
<FCNR>													8'-6"		
36-127 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov **:P-01 on metal frames and base.
<FCNR>													8'-6"		
36-130 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov **:P-01 on metal frames and base.
<FCNR>													8'-6"		
36-131 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov **:P-01 on metal frames and base.
<FCNR>													8'-6"		

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		*Base*		*North*		*South*		*East*		*West*		*Ceiling*		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
36-132	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov
OFFICE	AF-02	C-2	M	P-01											**:P-01 on metal frames and base.
	RM-8														
<FCNR>													8'-6"		
36-133	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov
OFFICE	AF-02	C-2	M	P-01											**:P-01 on metal frames and base.
	RM-8														
<FCNR>													8'-6"		
36-134	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov
OFFICE	AF-02	C-2	M	P-01											**:P-01 on metal frames and base.
	RM-8														
<FCNR>													8'-6"		
36-135	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov
OFFICE	AF-02	C-2	M	P-01											**:P-01 on metal frames and base.
	RM-8														
<FCNR>													8'-6"		
36-136	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov
OFFICE	AF-02	C-2	M	P-01											**:P-01 on metal frames and base.
	RM-8														
<FCNR>													8'-6"		
36-137	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov
OFFICE	AF-02	C-2	M	P-01											**:P-01 on metal frames and base.
	RM-8														
<FCNR>													8'-6"		
36-140	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov
OFFICE	AF-02	C-2	M	P-01											**:P-01 on metal frames and base.
	RM-8														
<FCNR>													8'-6"		
36-141	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov
OFFICE	AF-02	C-2	M	P-01											**:P-01 on metal frames and base.
	RM-8														
<FCNR>													8'-6"		
36-142	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov
OFFICE	AF-02	C-2	M	P-01											**:P-01 on metal frames and base.
	RM-8														
<FCNR>													8'-6"		

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
36-143 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov **:P-01 on metal frames and base.
<FCNR>													8'-6"		
36-144 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		*: P-08 on soffit;column & convector cov **:P-01 on metal frames and base.
<FCNR>													8'-6"		
36-150 OFFICE	CONC AF-01	CFS2	GW01 M	VB-2 P-01	GL	*	GW01	VWC-1	GL	*	GW01	VWC-1	ACT-1		*:P-08 on soffit & convec. cover *:VWC-1 on column enclosure
<689>													8'-6"		
36-151 OFC.SUP.	CONC AF01 RM-8	CFS2 PL-1	GW01	VB-1	GW01	P-07	GW01	P-07	GW01	P-07	GW01	P-07	GW01	P-02	* VARIES SEE CLG PLAN DTL.
<TSR>															
36-152 CONFER.	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GW01	VWC-1	GW01	VWC-1	GL	*	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov ** P-01 on metal frames and base
<MTBR>													8'-6"		
36-153 ELEC CLO.	CONC AF-01 RM-8	CFS2 PL-2	GW01	VB-1											See base bldg modifications for other finishes
<UCLR>															
36-160 OFFICE	CONC AF-02	CFS2 C-2	GW01 M	VB-2 P-01	GW01	VWC-1	GL	*	GL	*	GW01	VWC-1	ACT-1		* P-08 on soffit & convector cover * VWC-1 on column enclosure
<693>													8'-6"		
36-161 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov ** P-01 on metal frames and base.
<FCSR>													8'-6"		
36-162 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov ** P-01 on metal frames and base.
<FCSR>													8'-6"		

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
36-163 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov ** P-01 on metal frames and base.
<FCSR>													8'-6"		
36-164 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov ** P-01 on metal frames and base.
<FCSR>													8'-6"		
36-165 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov ** P-01 on metal frames and base.
<FCSR>													8'-6"		
36-166 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov ** P-01 on metal frames and base.
<FCSR>													8'-6"		
36-167 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov ** P-01 on metal frames and base.
<FCSR>													8'-6"		
36-168 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov ** P-01 on metal frames and base.
<FCSR>													8'-6"		
36-169 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov ** P-01 on metal frames and base.
<FCSR>													8'-6"		
36-170 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov ** P-01 on metal frames and base.
<FCSR>													8'-6"		
36-171 OFFICE	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov ** P-01 on metal frames and base.
<FCSR>													8'-6"		

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
36-172	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov
OFFICE	AF-02	C-2	M	P-01											** P-01 on metal frames and base.
	RM-8														
<FCSR>													8'-6"		
36-173	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov
OFFICE	AF-02	C-2	M	P-01											** P-01 on metal frames and base.
	RM-8														
<FCSR>													8'-6"		
36-174	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov
OFFICE	AF-02	C-2	M	P-01											** P-01 on metal frames and base.
	RM-8														
<FCSR>													8'-6"		
36-175	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov
OFFICE	AF-02	C-2	M	P-01											** P-01 on metal frames and base.
	RM-8														
<FCSR>													8'-6"		
36-176	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov
OFFICE	AF-02	C-2	M	P-01											** P-01 on metal frames and base.
	RM-8														
<FCSR>													8'-6"		
36-177	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov
OFFICE	AF-02	C-2	M	P-01											** P-01 on metal frames and base.
	RM-8														
<FCSR>													8'-6"		
36-180	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov
OFFICE	AF-02	C-2	M	P-01											** P-01 on metal frames and base.
	RM-8														
<FCSR>													8'-6"		
36-181	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov
OFFICE	AF-02	C-2	M	P-01											** P-01 on metal frames and base.
	RM-8														
<FCSR>													8'-6"		
36-182	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov
OFFICE	AF-02	C-2	M	P-01											** P-01 on metal frames and base.
	RM-8														
<FCSR>													8'-6"		

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
36-183	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov
OFFICE	AF-02	C-2	M	P-01											** P-01 on metal frames and base.
	RM-8														
<FCSR>													8'-6"		
36-184	CONC	CFS2	GW01	VB-2	GL	**	GL	*	GW01	VWC-1	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov
OFFICE	AF-02	C-2	M	P-01											** P-01 on metal frames and base.
	RM-8														
<FCSR>													8'-6"		
36-190	CONC	CFS2	GW01	VB-2	GW01	VWC-1	GL	*	GW01	VWC-1	GL	*	ACT-1		* P-08 on soffit & convector cover
OFFICE	AF-02	C-2	M	P-01											* VWC-1 on column enclosure
<690>													8'-6"		
36-200	CONC	CFS2	W-02		GW01	F-02	GW01	F-02	W-02		W-02		GW01	P-02	SEE SHEET A-214, A-216
RECEPTN	AF-02	C-1					W-02	*							* Wood trim
	RM-8														
<RCPR>													8'-6"		
36-201	CONC	CFS2	GW01	VB-2	GW01	P-08	GW01	P-08	GW01	P-08	GW01	P-08	GW01	P-02	coat rod & hat shelf PL-05
COAT	AF-02	C-1													
	RM-8														
<CLRR>													8'-6"		
36-202	CONC	CFS2	W-02		GW01	F-02	GW01	F-02	GW01	F-02	GW01	F-02	GW01	P-02	* Wood trim; see sht. A-213, A-214
CONFER.	AF-02	C-1			W-02	*	W-02	*	W-02	*	W-02	*			
	RM-8														
<MTMR>													8'-6"		
36-203	CONC	CFS2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	P-02	
HALL	AF-01	C-1													
	RM-8														
<HANR>													8'-6"		
36-210	CONC	CFS2	GW01	VB-2	GL	**	GW01	VWC-1		*		*	ACT-1		* P-08 on soffit;column & convector cov
OPEN AREA	AF-02	C-2	M	P-01											** P-01 on metal frames and base
	RM-8														
<FLNR>													8'-6"		
36-211	CONC	CFS2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		coat rod & hat shelf (PL-05).
COATS	AF-02	C-2													
	RM-8														
<CLFR>													8'-6"		

ROOM	MATERIALS & FINISHES														REMARKS
	Floor		Base		North		South		East		West		Ceiling		
<code>	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	Matl	Fnsh	
36-212 COATS	CONC AF-02 RM-8	CFS2 C-2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		coat rod & hat shelf (PL-05).
<CLFR>													8'-6"		
36-220 OPEN AREA	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GW01	VWC-1		*		*	ACT-1		* P-08 on soffit;column & convector cov ** P-01 on metal frames and base
<FLNR>													8'-6"		
36-230 OPEN AREA	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GW01	VWC-1		*		*	ACT-1		* P-08 on soffit;column & convector cov ** P-01 on metal frames and base
<FLNR>													8'-6"		
36-231 COAT	CONC AF-02 RM-8	CFS2 C-2	GW01	VB-2	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	GW01	VWC-1	ACT-1		coat rod & hat shelf (PL-05).
<CLFR>													8'-6"		
36-240 OPEN AREA	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GW01	VWC-1		*		*	ACT-1		* P-08 on soffit;column & convector cov ** P-01 on metal frames and base
<FLNR>													8'-6"		
36-250 OPEN AREA	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GL	**	GW01	VWC-1		*		*	ACT-1		* P-08 on soffit;column & convector cov ** P-01 on metal frames and base
<FLNR>													8'-6"		
36-260 OPEN AREA	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GW01	VWC-1	GL	**	GL	*	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov ** P-01 on metal frames and base
<FLSR>													8'-6"		
36-270 OPEN AREA	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GW01	VWC-1	GL	**	GL	*	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov ** P-01 on metal frames and base
<FLSR>													8'-6"		
36-280 OPEN AREA	CONC AF-02 RM-8	CFS2 C-2	GW01 M	VB-2 P-01	GW01	VWC-1	GL	**	GL	*	GW01	VWC-1	ACT-1		* P-08 on soffit;column & convector cov ** P-01 on metal frames and base
<FLSR>													8'-6"		
36-052 WOMEN	*	*	* GW01	* VB-1	*	*	* GW01	* **	*	*	* GW01	* **	*	*	* EXIST. CONSTRUCTION ** MATCH EXIST. PAINT

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

THE PORT AUTHORITY OF N.Y. & N.J.
ENGINEERING DEPT., QUALITY ASSURANCE DIV
TENANT CONSTRUCTION REVIEW UNIT

JUL 16 1991

RECEIVED

NOTED: PSC 16 July 91
REFERRED TO: JAZFILD

MEMORANDUM

To: Rick Wegel
From: Paul S. Cooper
Date: July 12, 1991
Subject: **TENANT ALTERATION REVIEW REQUEST, W-7004-2, for 7 WTC - 5th, 6th, 7th Floors, dated 7/10/91.**

Reference: a) Silverstein Properties letter to Lou Menno, dated July 1, 1991 with description of insulation.

b) Silverstein Properties letter to Ed McNierney, dated July 9, 1991, with reduced copies of 5th, 6th and 7th floor plans.

A review of the material submitted will not be possible for the following reasons:

1. The specifications and plans are not legible.

2. The use of the material is not clear. The referenced letter "b" indicates the insulation is fire stopping whereas the specification sheet describes its ability to withstand heavy loads at foundation walls or roofs.

   In addition, Mr. McNierney was advised that the material was to be used to fill voids between the slab and curtain wall to prevent diesel fumes from penetrating the 5th, 6th and 7th floors from the 4th floor.

3. The third paragraph in referenced letter "a," "For our records, we need the PA's verification that the material meets city code," cannot be reviewed since we are in doubt regarding the intended use and location of the material.

Please advise the writer that the Board of Standards and Appeals resolutions are based on specific uses, descriptions, inspections and tests; therefore, a copy of the BS&A resolution should be submitted to ascertain that the material is approved for it's intended use.

Paul S. Cooper
Engineer of Projects
Design Standards/TCRU Unit

GLE/dm

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

M E M O R A N D U M

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Paul S. Cooper
Engineer of Projects
Design Standards/TCRU Unit

GLE/dm

TENANT ALTERATION REVIEW REQUEST
World Trade and Economic Developement

7/11

No.	Routing	Loc.
QUALITY ASSURANCE		51W
✓	P.Cooper	W/3
IN HOUSE		36S
___	R.Becker	W/1
___	V.Levinson	W/1
___	Sen Pu Chiao	W/1
WT&EDD CONSTR.		36N
___	P.Cavanagh	W/1
OPERATIONS		B2 RM.211
___	T.Cancelliere	W/1
RISK MANAGEMENT		Z57
__	S.Altman PATC 3FL	W/1
__	G.Sepie PATC 2FL	__
ASBESTOS		36N
___	F.Boyce	W/1

Applicant's Name: SILVERSTEIN PROPERTIES

Facility: SEVEN WORLD TRADE CENTER

T.A.A. No: W 7004 - 2

Dwg.No(s).
✓ See attached

Contract No: WTC 597.004

Location: 7 WTC - 5.6.7 FLRS

Date: 7/10/91

[ ] SPECIAL INSTRUCTIONS: THIS INSULATION IS BEING SPECIFIED TO FILL ANY VOIDS BETWEEN SLAB & CURTAIN WALL SO THAT DIESEL FUMES FROM 4th FLR DON'T PENETRATE 5-6-7 & FLRS

Originating Unit: 093

Contact: E. McNIERNEY

Extn: 435 - 2340 36W

Please return no later than: July 18, 1991

Supervisor: Rick Wegel Extn. 435 - 8693 36W

Submission: 1st [✓] 2nd [ ] 3rd [ ] 4th [ ] 5th [ ] 6th [ ] other [ ]

Construction cost: $ _____

Description of work:

[ ] General construction: [✓] Construction limited to: INSULATION ALONG EXTERIOR WALLS

[ ] Minor work including:

[ ] Architectural [ ] Electrical [ ] Plumbing [ ] _____
[ ] Structural [ ] HVAC [ ] Sprinkler [ ] _____
[ ] Other: _____

THE PORT AUTHORITY OF N.Y. & N.J.
QUALITY ASSURANCE
ENGINEERING DEPT.

Attached are:

JUL 11 1991
RECEIVED

[ ] BS&A / MEA resolutions [ ] Laboratory test reports for carpeting
[ ] Catalog cuts [ ] Samples [ ] _____
[ ] Consultants' responses to Port Authority review comments

NOTED
REFERRED TO: FORMULAR

Remarks: BS & A NUMBER INCLUDED FOR INSULATION (#97B-79-SM)

cc: ~~C. Daly~~, G. Gaeta, ~~E. Monteverde~~, ~~T. Bush~~, J. Uryini, R. Wegel, ~~G. Henger~~, E. McNIERNEY, A. CELLA
(Proj. Mgr.) (Rentals Rep.)

19

W. 7004

Signature: _____ Date: 7-2-91

(For) Louis Menno, Manager
Contract and Tenant Services Division
World Trade and Economic Developement

jpv 05/10/91

SILVERSTEIN PROPERTIES

Silverstein Properties, Inc.
7 World Trade Center
New York, N.Y. 10048
Telephone: 212 619-6569
Fax: 212-732-5190

July 1, 1991

Mr. Lou Menno
Manager of Construction &
Tenant Services
PORT AUTHORITY OF NY & NJ
1 World Trade Center
36th Floor
New York, NY 10048

RE: 7 World Trade Center

Dear Lou:

We are planning to insulate a few areas on the 5th, 6th, and 7th floors of our building with a BSA approved foam insulation.

I have attached a copy of the specs of this insulation, including the NYC BSA#978-79-SM rating.

For our records we need the PA's verification that the material meets city code.

I would appreciate you providing this as soon as possible, so we may begin our work.

Sincerely,

Cynthia Rice
General Manager

CR/as

cc: B. Kesner
R. Kastner

THE PORT AUTHORITY OF N.Y. & N.J.
QUALITY ASSURANCE
ENGINEERING DEPT.
JUL 11 1991
RECEIVED
NOTES: _____
REFERRED TO: _____

(19)

W 9004

Extruded Polystyrene Insulation

FOAMULAR®

. . . an extruded polystyrene rigid foam insulation offering exceptionally long lasting R-value; superb water/moisture resistance properties; and a range of compressive strengths to meet the application needs of the architect, contractor, builder and owner. It is a unique balance of properties found only in the closed cell structure of an extruded polystyrene insulation. Foam struction applications such as concrete or masonry ca perimeter/foundation walls, precast concrete and in strength insulation is needed to withstand heavy loa Foamular is also ideal for use in single-ply, tapered, on new roofs or in the reroofing of old roofs.

Silverstein Realty Co.
#7 World Trade Center

Attn: George Rioseco

FAX # (212) 732 5190

Note: See B.S.A. # 979-79-SM on the bottom of page.

Performance and Application

INSULATING EFFECTIVENESS

Long-term, aged thermal resistance (R-value) of 5.4 at 40°F, and 5.0 at 75°F., mean temperature for 1 inch of product thickness. It is an R-value higher than other commonly used insulating products and recommended for long term performance. Available tongue and groove edges provide tight fit of Foamular panels to further reduce air infiltration. Built-in rigidity resists damage to panels even when backfilling or in use under slabs.

MOISTURE RESISTANCE

Foamular offers exceptional resistance to moisture of all kinds — ground water, condensation, water leakage, freeze/thaw cycling — for long term retention of high R-value. Excellent hydrophobic properties minimize wicking and provide superior dimensional stability under elevated moisture conditions. Foamular is also resistant to the deleterious effects of mildew, fungus, corrosion and common soil acids.

CHOICE OF STRENGTHS, SIZES

Foamular is available in a variety of compressive strengths ranging from a high of 60 psi (min.) to an economical 15 psi (min.) — the world's lowest density extruded polystyrene insulation. A selection of standard sizes and thicknesses precisely meets most application needs. Custom sizes are available, as required.

EASE OF HANDLING, INSTALLATION

Foamular is a rigid foam extruded polystyrene product, requiring no foil facing, that's lightweight, durable and impact resistant. These features facilitate both handling and installation and permit ease of sawing, cutting and scoring.

FIRE RATINGS

Assemblies using Foamular include wood and steel stud walls, masonry walls, fire resistive and "Class A" roof decks, and fire resistant roof-ceiling assemblies; see UL Certificate U-197.

Product Description

Foamular is polystyrene foam insulation extruded into panels by UCI's patented Hydrovac™ process which develops continuous skin surfaces and closed-cell cores. Cells have interconnecting walls of consistent thickness with no voids. This uniform structure gives Foamular high insulating values and superior moisture resistance.

Moisture penetration significantly reduces thermal effectiveness of many insulation [illegible] loose fill and fibrous batts, and, to a lesser extent, polyisocyanurate and molded EPS (beadboard) panels. [illegible], however, absorbs less water than either molded EPS or polyisocyanurate, thanks to the surface skin and closed-cell structure that extruding provides. The closed cell structure also accounts for its higher thermal efficiency (greater "R" per inch of thickness) than that of molded EPS, fibrous or loose-fill insulation.

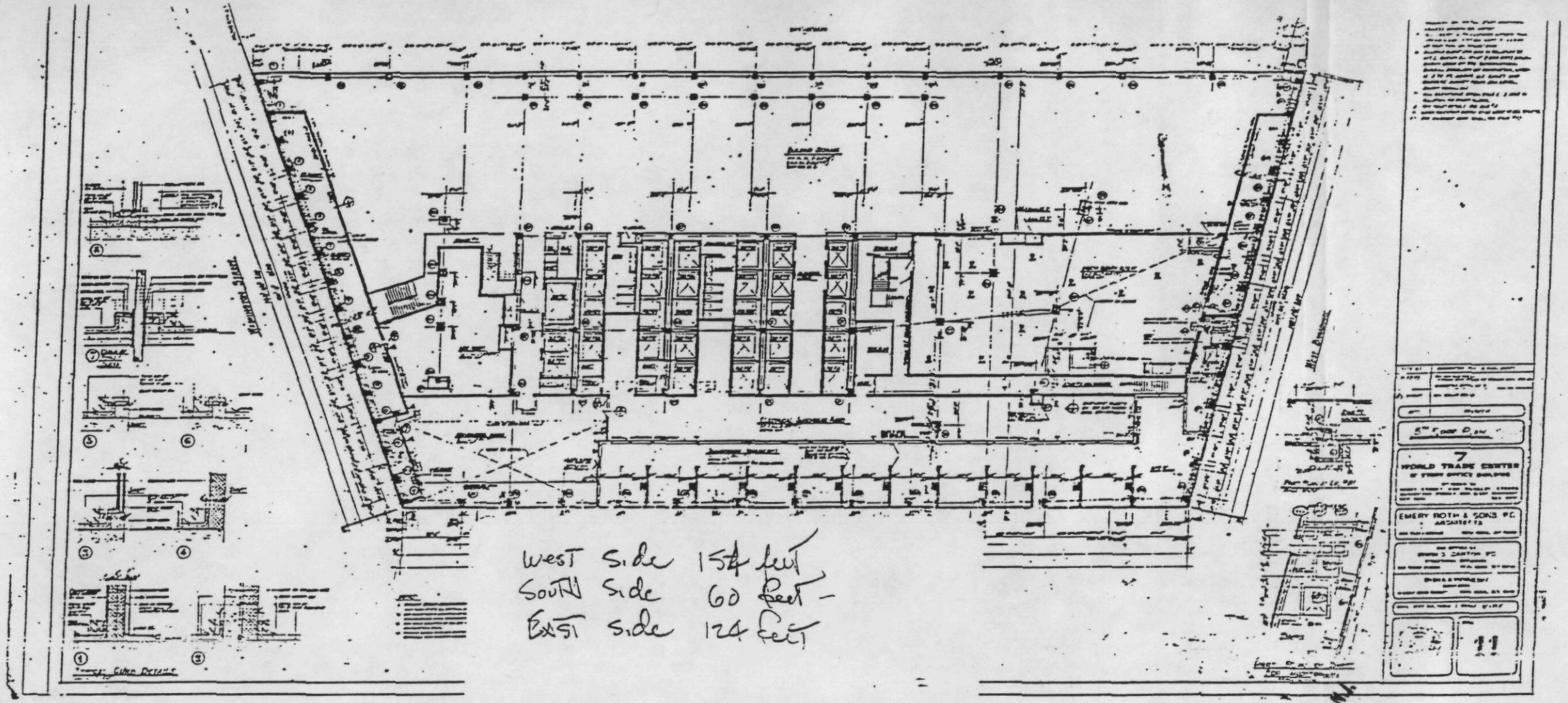
THE PORT AUTHORITY OF N.Y. & N.J.
QUALITY ASSURANCE
ENGINEERING DEPT.
JUL 11 1991
RECEIVED W-9004
NOTED:
REFERRED TO:

Standards and Specifications

ASTM C-578-87a

	Type X	Type IV	Type VI	Type VII
[illegible]	✓			
[illegible]	✓	✓		
[illegible]	✓	✓	✓	
Foamular 600	[illegible]	[illegible]	[illegible]	[illegible]

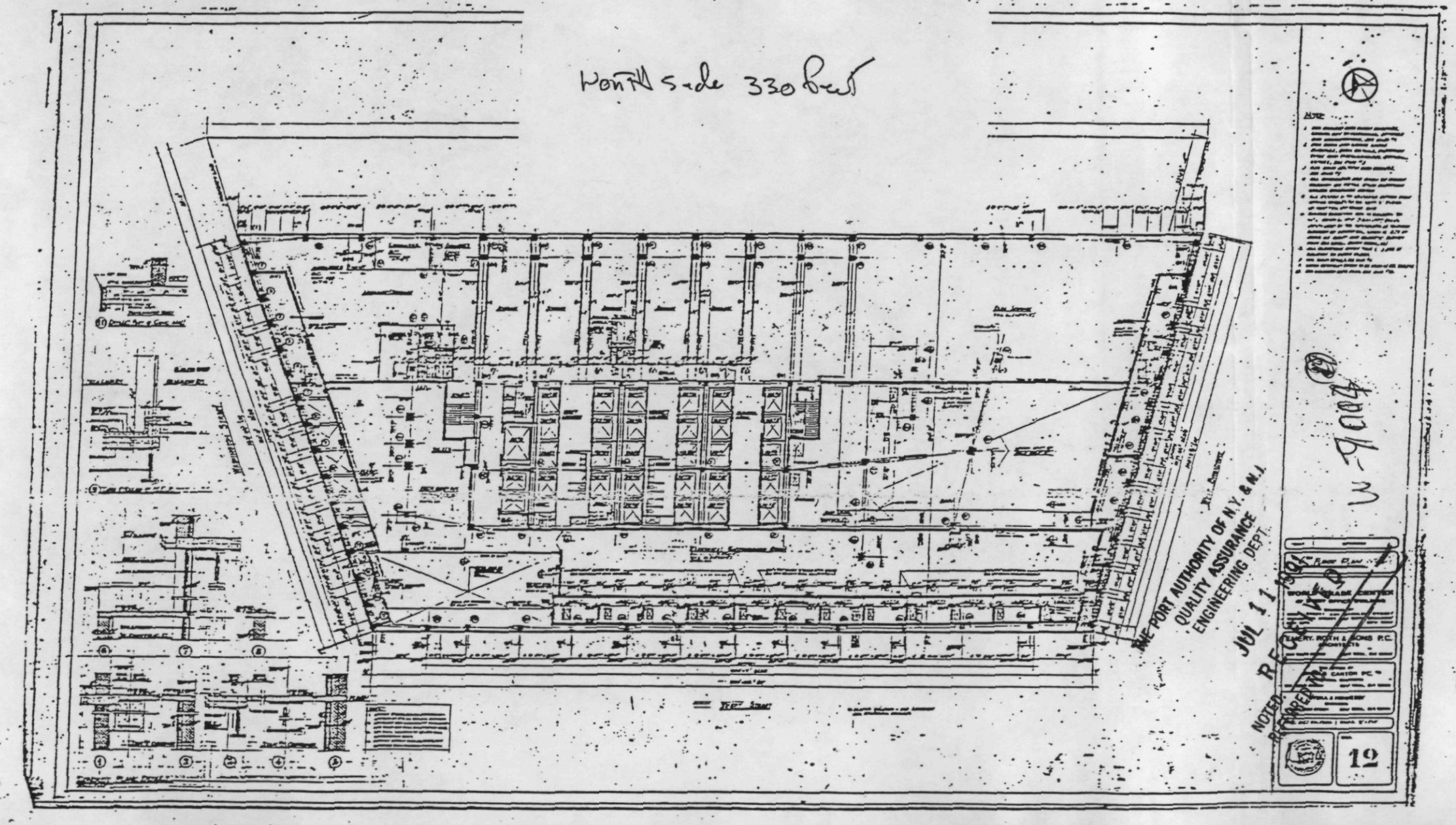
- Meets ASTM Standard Specifications (see chart)
- Underwriters Laboratories, Inc.® — Classification Certificate U-197
- Research Reports — BOCAI 88-31; ICBO 3628; SBCCI 8615
- Meets HUD/FHA Use of Materials Bulletin No. 71 for sheathing
- Approved by the California Energy Commission and Department of Consumer Affairs
- Listed by the State of Minnesota Department of Energy
- New York City B.S.A. #978-79-SM.



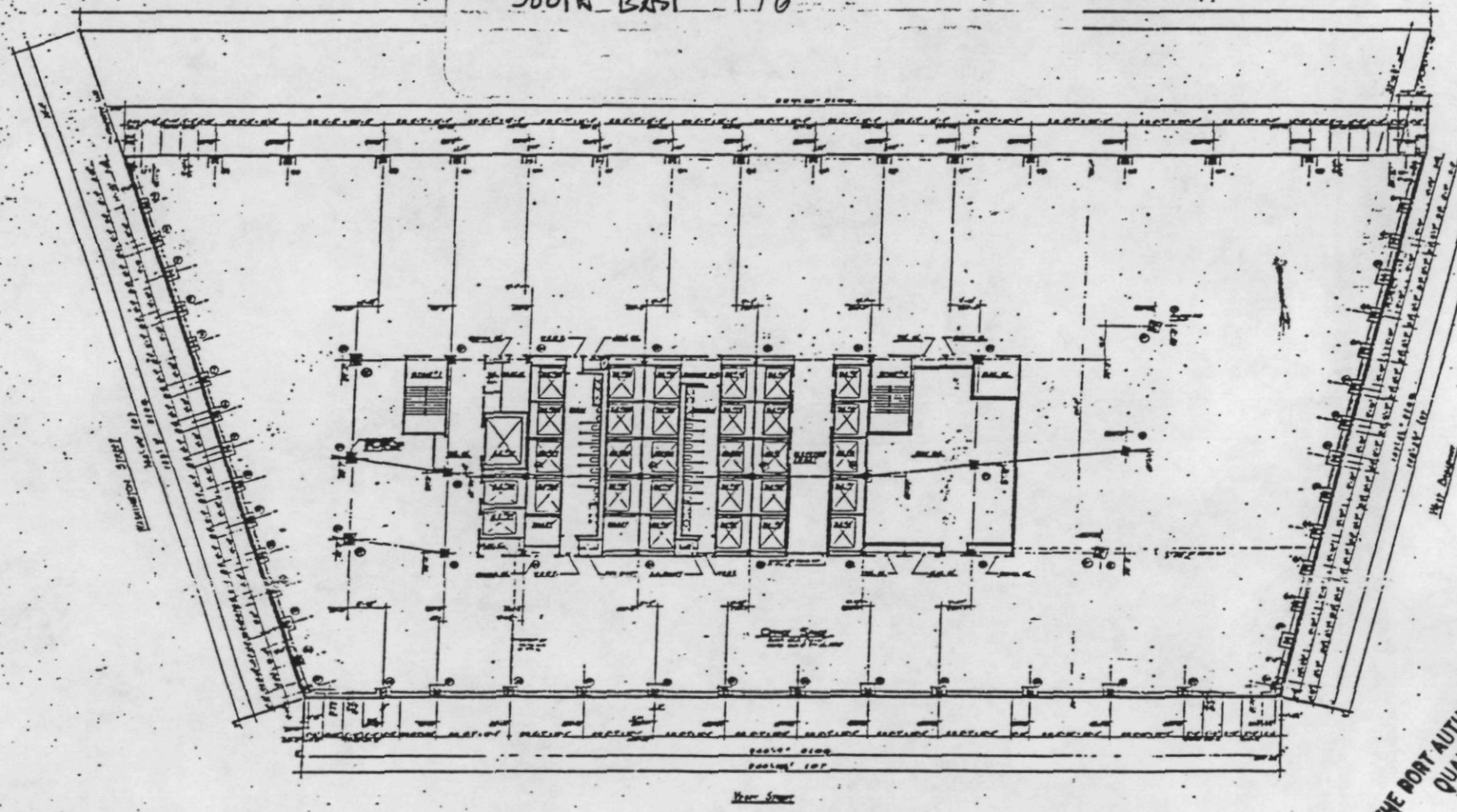
West Side 154 feet
South Side 60 feet
East Side 124 feet

THE PORT AUTHORITY OF N.Y. & N.J.
QUALITY ASSURANCE
ENGINEERING DEPT.
JUL 11 1991
RECEIVED
NOTED
REFERRED TO

5th flr


North side 330 feet
THE PORT AUTHORITY OF N.Y. & N.J.
QUALITY ASSURANCE
ENGINEERING DEPT.
JUL 11 1991
RECEIVED
NOTED
REFERRED TO
12
6th flr

West Side 154'
East Side 154'
South West 70'
South East 176'



THE PORT AUTHORITY OF N.Y.
QUALITY ASSURANCE
ENGINEERING

7th floor

7
WORLD TRADE CENTER
EMERY ROTH & SONS P.C.
ARCHITECTS

14

7th floor

SILVERSTEIN PROPERTIES

Silverstein Properties, Inc
7 World Trade Center
New York, N.Y. 10048
Telephone: 212 619-6569
Fax: 212-732-5190

July 9, 1991

Mr. Ed McNierney
Construction And
Tenant Services
One World Trade Center
36th Floor
New York, NY 10048

Dear Ed:

Pursuant to our conversation, I've enclosed copies of floor plans (8 1/2" x 14") for the 5th, 6th and 7th floors of 7 World Trade Center. The insulation (fire-stopping) will be installed in the areas indicated on the plans.

After your review, please advise this office so our contractor can proceed.

Your cooperation and assistance in this matter is appreciated.

Sincerely,

William T. Kesner

William T. Kesner
Asst. Building Manager

WTK/dp

cc: Cynthia Rice
Richard Kastner

THE PORT AUTHORITY OF N.Y. & N.J.
QUALITY ASSURANCE
ENGINEERING DEPT.
JUL 11 1991
RECEIVED
NOTED
REFERRED TO

LN-7104

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

BUCKSLIP

TO: Karen Eastman
FROM: George Rossi
DATE: June 17, 1991
SUBJECT: FREEDOM OF INFORMATION REQUEST FOR 7 WORLD TRADE CENTER FROM MARIS BIBELNEIKS DATED JUNE 6, 1991

COPY TO: A. Cella, P. Cooper, F. Garcia

Be advised that the Engineering Department has advised us that the three items requested by Maris Bibelnieks regarding Salomon Inc.'s construction do not exist since the approval of plans, permission to construct and permission to occupy are provided internally by the Port Authority and not by the New York City Building Department.

G. T. R.

THE PORT AUTHORITY OF N.Y. & N.J.
ENGINEERING DEPT., QUALITY ASSURANCE DIV.
TENANT CONSTRUCTION REVIEW UNIT

JUN 18 1991

RECEIVED
NOTED: 6/21/91
REFERRED TO: Job File

W-7004

THE PORT AUTHORITY OF NY & NJ

The World Trade Center
One World Trade Center
New York, New York 10048

THE PORT AUTHORITY OF N.Y. & N.J.
ENGINEERING DEPT., QUALITY ASSURANCE DIV.
TENANT CONSTRUCTION REVIEW UNIT

OCT 24 1990

RECEIVED

NOTED: _____
REFERRED TO: W7004 Folder

October 19, 1990

Mores Diesel
Seven World Trade Center
New York, N.Y. 10048

Attention: J. Shoop

Re: INSTALLATION BUS DUCT SWITCH

Dear Jim:

Please be informed that the installation of bus duct switches in close proximity to breaker panels are in violation of the Electrical Code of New York City Bulletin Number 119.3.

Please advise this office of the action you plan to take. If you have any questions concerning the matter, please contact Frank Varela at 313-2292.

Sincerely,

Paul Cavanagh, P.E.
Supervising Engineer
WT&ED Construction

FV/dr

cc: Mark Bassin (Silverstein)
Mike Smith (Silverstein)

bcc: P. Cooper, G. Daly, P. Marchese, A. Reiss, V. Vaccariello, F. Varela, J. Urinyi, D. Wolf

Elect. Closet
[illegible] bus duct switch
[illegible] panel in close proximity

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

M E M O R A N D U M

To: Mr. A. Vaccaro, Acting General Manager,
Planning, Design & Construction, WT&ED
From: Ennala Ramabhushanam
Date: January 9, 1990
Subject: **7 WTC - ALTERATION APPLICATION #W-7004 - SALOMON BROTHERS**

Reference: Memorandum Wegel/Cooper, dated January 5, 1990 (Copy attached)

Copy To: Cooper, Dovletian, Menno, Wegel, Chrono File, Job Folder

A review of the referenced memorandum has been made, and the following are the resulting comments:

1. TCRU concurs with items 1 and 2.

2. TCRU will concur with item number 3 if its intent is to have the occupied side of glass wall conform with New York City Building Code Section C26-720.3(d), or (c).

This memorandum was transmitted to the Facility via OA on January 9, 1990.

Ennala Ramabhushanam, P.E.
Manager
Quality Assurance Division

PSC/VAD/dm
att.

THE PORT AUTHORITY OF N.Y. & N.J.
TENANT CONSTRUCTION REVIEW UNIT
RECEIVED
JAN 08 1990
NOTED PSC 8 Jan 90
REFERRED TO V&O

MEMORANDUM

TO: Paul Cooper
FROM: Rick Wegel
DATE: January 5, 1990
SUBJECT: MEETING HELD ON DECEMBER 8, 1990 REGARDING WT-7 - SALOMON - DESIGN ISSUES

REF: Letter dated December 18, 1989 to R. Wegel from J. Glass

COPY TO: P. Cavanagh, V. Dovletian, L. Menno, E. McNierney

Please advise if you concur with the interpretation of the three (3) issues addressed in the above referenced letter.

Thanks,

Edward J. McNierney
for Rick Wegel
Senior Project Engineer

Attachment

RW/sm

Member of the New York Stock Exchange, Inc.

One New York Plaza
New York, N.Y. 10004 (212) 747-7000

Salomon Brothers Inc

December 18, 1989

Mr. Rick E. Wegel
Senior Project Engineer
The Port Authority of NY & NJ
One World Trade Center, Suite 74S
New York, NY 10048

Re: 7 WTC - Design Issues

Dear Rick:

At our meeting on 12/8/89 at your offices, we discussed several design issues related to the construction of the Salomon offices at 7 WTC. This letter confirms the agreements reached with Paul Cooper, Varouj Dovletian, Ed McNierney and yourself.

1) Raised floor extended into the electrical closets will be permitted around transformers, provided a space of approximately 6-inches is maintained between the transformer and the edge of the floor.

2) The fuel oil piping will be permitted in a fire-rated shaft with other utilities provided there is separation between the pipe and the utilities within the shaft. It was stated that the outer wall of the double-walled pipe would provide sufficient separation; however, in subsequent discussions, Varouj confirmed that the separation must be 2-hour fire-rated construction. This is consistent with the notes on the current design documents.

3) Fire sprinkler design for the Salomon side of the glass wall in the Silverstein lobby will be acceptable only if it equals the density of the water-curtain design existing on the lobby side of the glass.

Please return an acknowledgement of these agreements at your earliest convenience.

Sincerely,

Jack Glass
Project Manager

cc: R. White
M. Fernandez/File (7-8800-02.000.20)
J. Beech
D. Cooper
W. Mathison
D. Sullivan
B. Reinholtz

249

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

M E M O R A N D U M

To: Mr. A. Vaccaro, Acting General Manager,
Planning, Design & Construction, WT&ED
From: Ennala Ramabhushanam
Date: October 5, 1989
Subject: **WTC - ALTERATION APPLICATION #W-7004 - SOLOMON BROTHERS - 7 WTC - BASE BUILDING MODIFICATIONS**

Reference: Tenant Alteration Review Request, dated 9/11/89

Copy To: T. O'Connor L. Sanchez Job Folder
Chrono Folder

A review of the material submitted with the referenced request for the subject application has been made.

The previous recommendation of approval to proceed with construction remains unchanged subject to the submission of the items listed below being revised in accordance with the twelve (12) requirements listed on the attached rider, as well as the outstanding comments from the following memorandum:

a Memo E. Rama to R. Linn, dated 5/23/89;
comment 1 and comments 3 through 7, inclusive.

o Memo E. Rama to R. Linn, dated 7/14/89;
comments 1 through 6, inclusive.

Code Analyses:

Drawings:

Specifications:

REMARKS: 1) This memorandum was transmitted to the Facility via OA on September 5, 1989.

for Ennala Ramabhushanam, P.E.
Manager
Quality Assurance Division

JPV/dm
att.

RIDER

ALTERATION APPLICATION #W-7004

STRUCTURAL

1. Dwg. #S-4. Note #3 calls for beam reinforcing plates at 24th floor, whereas calculations and List of Changes refer to 28th floor. Please co-ordinate. Submit calculations for 24th floor, if required.

2. Clarify the occupancy type in the specially loaded areas shown on the loading diagram. Explain how the load of 200 psf was derived.

ELECTRICAL

3. Dwg. #E-R3. As the latest revision has deleted the panels feeding emergency power to the existing elevators, submit the design for reinstating emergency power to all affected elevators. See Rules & Regulations of the Department of Buildings Relating to Emergency Power Systems, effective 4/20/86, and N.Y.C. Building Code Sections C26-610.1 through C26-610.3. Coordinate revision with Dwg. #E-S2, which showed the panel schedules for elevators, and submit updated drawings.

HVAC

4. Dwgs. #HVAC-3, HVAC-4 and HVAC-5. Provide fire dampers and access doors in 36 x 24 outside air intake and spill air ducts of the second floor auditorium air conditioning unit at each floor slab penetration in conformance with N.Y.C. Building Code RS 13-1, Section 3-3.2.1.

5. Dwg. HVAC-5. Show the connection to outside air for the 36 x 24 outside air duct serving second floor auditorium air conditioning unit. See N.Y.C. Building Code, Section C26-116.3.

6. Dwgs. HVAC-5 and HVAC-6. With regard to notes on these drawings pertaining to smoke control in generator room on 5th and 6th floors and referring to sequence of operation for generator system, note that such sequence shall be submitted for review by this office, and that pertinent notes on drawings shall refer to specific section of specifications, where this sequence of operation is described.

   The sequence shall take into account that 5th and 6th floor outside air intake louvers on the west side of the building are in proximities of the Con Edison Substation venting louvers, therefore, their deactivation for the purpose of creating a negative pressure during smoke condition in the emergency generation space shall be sequenced in such a manner so as to minimize the possibilities of the substation fire and its combustion products to be drawn into the building. See RS 13-1, Section 2-3.4.3.

During discussions at the meeting of 5/11/89, Port Authority personnel suggested that since the sequencing of the forced outside air intake fans shutdown during smoke condition in the emergency generator space, priority be given to the louvers directly above and/or adjacent to the potential source of smoke.

7. Dwg. #HVAC-31, Section A-A. Show the volume of ventilation (outside) air for which the 24 x 36 outside air duct is intended to be balanced. See C26-116.3.

8. Dwgs. HVAC-42, 43, 44, 46 and 47. Provide required fire rated enclosure for all kitchen exhaust ducts shown on these drawings. See RS 13-3, Section 3-5.1.

9. Dwg. HVAC-44. Define dimensions of tenant kitchen exhaust ducts shown on this drawing in and at west mechanical equipment room, and if it is the same duct show the arrangement of the connecting duct section in conformance with code section C26-110.2.

10. Dwg. HVAC-47. Describe the function of duct risers shown at intersection of column lines 46 and 40 and, if applicable show their locations in penthouse mechanical equipment room on Dwg. HVAC-49. See C26-110.2.

11. Dwgs. HVAC-52.4 and 52.6. Provide and show on MER plans the fire rated enclosures around all kitchen exhaust ducts shown on these drawings in conformance with RS 13-3, Section 3-5.1.

PLUMBING

12. Dwg. #P-4, revision #3. All three (3) inch capped outlets shall be fitted with a vacuum breaker unless specified what it will serve. New York City Plumbing code section P107.20.

PA 2127
1-85

9-11

TENANT ALTERATION REVIEW REQUEST

✓	CHECK APPLICABLE ROUTING	ROOM NO.
	Engineering (T.C.R.U.) 5 I N	~~6N~~
	Risk Management – JSTC – Zip 43	6 FL
	Operations Standards – JSTC – Zip 75	5 FL
	Terminal Properties Div.	56S
	Control Desk	
	Facility Manager –	
	Port Dept. – Planning Div.	64S
	Aviation Technical Services Div.	65S
	Air Terminal Properties Div.	
	JFK – Business Administration – Zip 6	
	NIA – Business Administration – Zip 19	
	Marine Development & Rentels Div.	71E
	Inspection & Safety	
	Resident Engineer - P. CAVANAGH	36W
	A. VACCARO	63W

Description of Work: P.A. PKG # 31
GENERAL REVISIONS TO PREVIOUSLY APPROVED BASE BUILDING DRAWINGS.

FACILITY 1 WTC
APPLICANT'S NAME SALOMON BRO
APPLICATION NO. W 7004
DRAWING NO(S). PER ATTACHED LIST
DATE 9 , 11 , 89

☑ You are requested to review the attached application and forward your comments to:

☑ Attached are revised drawings. Please review only those items on which exception was previously taken and send your comments to:

821	745	L. SANCHEY	8566
Org. Unit	Room No.	Contact	Ext.

No later than SEPT. 22, 1989

PROJECT ADMINISTRATOR
Title

If no reply is received by above date, your concurrence will be assumed unless arrangements have been made for additional time for review.

FOR USE OF REVIEWING DEPARTMENT

COMMENTS: (Use reverse side if necessary) Indicate next to each comment whether it is a condition or recommendation.

NOTE: REVISIONS ARE FOR STRUCTURAL MODIFICATIONS HVAC, ELECTRICAL, SPRINKLER, etc.

PLEASE FOCUS INITIALLY ON REPLACEMENT OF ONE (1) FUEL TANK FOR TWO (2) 6,000 GAL. TANKS AS SHOWN ON DWG. HVAC-1 TCRU'S IMMEDIATE RESPONSE ON THESE ITEMS IS REQUESTED.

BE ADVISED THAT THE BASE BUILDING PACKAGE WAS PREVIOUSLY APPROVED.

L. SANCHEZ

office copy

THE PORT AUTHORITY OF N.Y. & N.J.
TENANT CONSTRUCTION REVIEW UNIT
RECEIVED
SEP 1 - 1989
W-7004 (12)
ALTERATION APPLICATION

(Please check applicable box)

☐ Approved ☐ Approved with Conditions and Recommendations Noted Above ☐ Disapproved with Requirements for Approval Noted Above ☐ Disapproved for Reasons Noted Above

Signature	Title	Date
		/ /

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

M E M O R A N D U M

To: Mr. R. Linn, Deputy Director for Physical Facilities, WT&ED
From: Ennala Ramabhushanam
Date: July 14, 1989
Subject: **WTC - ALTERATION APPLICATION #W-7004 - SOLOMON BROTHERS - 7 WTC - BASE BUILDING MODIFICATIONS**

Reference: Tenant Alteration Review Request, dated 6/30/89

Copy to: L. Sanchez
A. Vaccaro
Job Folder
Chrono Folder

A review of the material submitted with the referenced request for the subject application has been made.

The previous recommendation of approval to proceed with Construction remains unchanged subject to the submission of the items listed below being revised in accordance with six (6) requirements listed on the attached rider, as well as the outstanding comments from the following memorandum:

- Memo: E. Rama to R. Linn, dated 5/23/89; comments 3 through 8, inclusive.

Code Analyses:

Drawings:

Specifications:

REMARKS: This memorandum was transmitted to the Facility via OA on July 14, 1989.

FOR Ennala Ramabhushanam, P.E.
Manager
Quality Assurance Division

JPV:jb
att.

RIDER

ALTERATION APPLICATION V-7004

ELECTRICAL

1. Dwgs. #E-R1, E-R2, E-R3, ER-6, E-S1, E-S2, E-S3, Specifications. Submit short-circuit calculations, and also submit tabulation of short-circuit ratings for buses, fuses, switches, and circuit breakers, with corresponding values of short-circuit current. N.Y.C. Electrical Code Sections B30-44.0, B30-44.1, B30-59.0; NEC Sections 110-9, 110-10. (Repeat comment)

MECHANICAL

2. Dwg. #HVAC-1. Please coordinate symbols used for the designation of the 1st floor auditorium unit with the symbols shown on drawings #HVAC-52.4 and #HVAC-55 and refer to these drawings on the #HVAC-1 drawing. See N.Y.C. Bulding Code, Section C26-110.2 (Repeat comment)

   Consultant's response has been noted but could not be verified in the materials submitted for review.

3. Dwgs. #HVAC-34, HVAC-35 and HVAC-44. Revise the arrangement of air flow for the Halon Purge system to ensure its effectiveness in conformance with the requirements of the Fire Department Directive 3-74. Note that halon gas is much heavier than air and its effective purge can be accomplished only by air inlets at the bottom of the halon protected space. (Repeat comment)

   Consultant's response has been noted. Exhausting the halon contaminated space from high points in addition to low points will create the short circuiting of make-up air directly to the high exhaust intakes, significantly reducing the effectiveness of the halon purge system. Please re-analyze the design or justify its workability.

4. Dwg. #HVAC-38. Provide designations of all air handling equipment shown on this drawing and refer it to schedules on Dwg. #HVAC-55 to clearly determine its operating parameters. See Code Section C26-116.3. (Modified repeat comment)

   Consultant's response could not be verified in the material submitted for review.

5. Dwgs. #HVAC-52.3 and #HVAC-52.4. Please provide description as well as sections and/or elevations as required to clarify the relations between smoke exhaust fans SX-40-1 and SX-42-1 and outside air intake ductwork. See Code Section C26-110.2. (Modified repeat comment)

6. Dwg. #HVAC-52.6. Submit copies of BS&A or MEA resolutions of approval for the new water chillers CH-47-1 and CH-47-2. Also, for both chiller assemblies, provide design operating parameters and include their operating weight in conformance with Code Sections C26-110.2 and C26-116.3. (Modified repeat comment)

   Above documentation and information is required regardless of consultant's response.

071489

'A 2127
1-85

TENANT ALTERATION REVIEW REQUEST

✓	CHECK APPLICABLE ROUTING	ROOM NO.
	Engineering (T.C.R.U.) 51 N.	~~4WE~~
	Risk Management – JSTC – Zip 43	6 FL
	Operations Standards – JSTC – Zip 75	5 FL
	Terminal Properties Div.	56S
	Control Desk	
	Facility Manager –	
	Port Dept. - Planning Div.	64S
	Aviation Technical Services Div.	65S
	Air Terminal Properties Div.	
	JFK – Business Administration – Zip 6	
	NIA – Business Administration – Zip 19	
	Marine Development & Rentals Div.	71E
	Inspection & Safety	
	Resident Engineer	
	R. LINN	63W
	E. McNIERNEY	74S
	A. VALLARD }	
	P. CAVANAGH } 3861	

Description of Work: (P.A. PKG #24) CONSULTANTS RESPONSES TO SUBMITTAL OF 5/22/89 (PKG #19) BASE BUILDING

FACILITY 7 WTC
APPLICANT'S NAME SALOMON BROS
APPLICATION NO. W 7004
DRAWING NO(S). PER ATTACHED
DATE 6, 30, 89

☑ You are requested to review the attached application and forward your comments to:

☐ Attached are revised drawings. Please review only those items on which exception was previously taken and send your comments to:

821	74 5	L. SANCHEZ	8566
Org. Unit	Room No.	Contact	Ext.

No later than JULY 25, 1989

PROJ. ADMIN.
Title

If no reply is received by above date, your concurrence will be assumed unless arrangements have been made for additional time for review.

FOR USE OF REVIEWING DEPARTMENT

OMMENTS: (Use reverse side if necessary) Indicate next to each comment whether it is a condition or recommendation.

HVAC-1, 31, 34, 35, 38, 44, 52.3, 52.4, 52.5, 52.6, 54.1, E-R1, E-52, ER-6
A-31

CON EDISON RESPONSE TO GENERAL ELECTRIC

THE PORT AUTHORITY OF N.Y. & N.J.
TENANT CONSTRUCTION REVIEW UNIT
RECEIVED
JUL 05 1989
W-7004 (16)
ALTERATION APPLICATION

Office Copy

Arturo Sanchez

L. SANCHEZ

lease check applicable box)

] Approved ☐ Approved with Conditions and Recommendations Noted Above ☐ Disapproved with Requirements for Approval Noted Above ☐ Disapproved for Reasons Noted Above

gnature	Title	Date
		/ /

TRANSMITTAL

SKIDMORE OWINGS & MERRI

TO

The Port Authority of N.Y. & N.J
One World Trade Center
New York, N.Y. 10048
Attn: LUCIANO SANCHEZ

RE

Salomon Brothers Inc
7 WORLD TRADE CENTER
NEW YORK, NEW YORK 10048

WE ARE SENDING HEREWITH THE FOLLOWING
DRAWINGS SPECIFICATIONS SHOP DRAWINGS SAMPLES

QUANTITY & TYPE	DESCRIPTION	DATE
4 SET B+W PRINTS & 2½ SIZE B+W PRINTS:		
HVAC-1	E-21	
HVAC-31	E-52	
HVAC-34	ER-6	
HVAC-35		
HVAC-38	A-31	
HVAC-44		
HVAC-52.3		
HVAC-52.4		
HVAC-52.5		
HVAC-52.6		
HVAC-54.1		

THE PORT AUTHORITY OF N.Y. & N.J.
TENANT OF THE BUILDING UNIT
RECEIVED
JUL 05 1989
W-7004 (16)
ALTERATION APPLICATION

office copy

6 PHOTOCOPIES EACH:

RESPONSES TO PA COMMENTS TO THE 5/22 BASE BUILDING ISSUE.
HVAC RESPONSES TO PA COMMENTS
TABLE 1
CON EDISON'S RESPONSE TO GENERAL ELECTRIC

DATE 28 JUN 89

RECEIPT AND RETURN TO SOM REQUESTED X Susanne

COPIES TO
D. SULLIVAN
CENTRAL FILE
W. MATHISON
C. MURPHY

* SEE ATTACHED DISTRIBUTION LIST

" COPIES TO" LIST
(Tenant Drawings)

Port Authority - L. Sanchez: 4 Sets B&W, 6 Photocopies 6(2) ½ SIZE B+W
Irwin Cantor - A. Tamboli: 1 Set B&W, 1 Photocopy
Caci Systems Design - C. Caci: 1 Set B&W, 1 Photocopy
Morse Diesel - B. Reinholtz: 1 Set B&W, 1 Photocopy, 1 Set Sepias
Morse Diesel - P. Kirby: 1 Set B&W, 1 Photocopy
E.S.A. - R. Sumski: 2 Sets B&W, 2 Photocopies
S.B.I. - M. Fernandez: 1 Set B&W, 1 Photocopy
S.B.I. - B. Glass: 1 Set B&W, 1 Photocopy
Silverstein Prop. - M. Smith: 3 Sets B&W, 3 Photocopies, 1 Set Sepias
Silverstein Prop. - Mr.Chi Chu: 1 Set B&W,1 Set(Half-Size),1 Photocopy
Silverstein Prop. - Carl Borsari: Copy of Transmittal with Drawing List
Silverstein Prop. - Jim Halpin: Copy of Transmittal with Drawing List
S&H - J. Bhatia: 1 Set B&W (1/2 size), 1 Photocopy
F&K - J. Beech: 3 Sets B&W (1/2 size), 3 Photocopies
P.T.C.I. - M. Simone: 2 Sets B&W, 2 Photocopies
Robert Hansen & Assoc. - R. Hansen: 1 Set B&W, 1 Photocopy
A.J. Contracting - A. Tosto: 1 Set B&W, 1 Photocopy
Herbert Construction Co. - J. Velazquez: 1 Set B&W, 1 Photocopy

S. O. M.

W. Mathison - Transmittal, 1 copy of Tenant Alteration Application
C. Murphy - 1 Set B&W (1/2 size), 1 Photocopy
D. Sullivan - 1 Set B&W (1/2 size), 1 Photocopy
B. Armstrong - 1 Set B&W (1/2 size), 1 Photocopy
S. Danielpour - 1 Set B&W (1/2 size), 1 Photocopy
D. Montgomery - 1 Set B&W (1/2 size), 1 Photocopy
CF6234-135 - 1 Copy of Transmittal

RESPONSES TO PORT AUTHORITY COMMENTS TO THE 5/22/89 BASE BUILDING MODIFICATION ISSUE

ARCHITECTURAL

1. COMMENT

Dwg. #A-31, Detail A. Clarify function of access panel shown in exit stair. Verify compliance with C26-604.8(j), openings in stair enclosures.

RESPONSE

The access panel has been removed from the stair enclosure to comply with C26-604.8(j). See revised dwg. A-31.

HVAC RESPONSES TO PA COMMENTS

COMMENT

4. Dwg. #HVAC-1. Show the physical location and the manner of termination for the fuel oil vent pipe in conformance with all provisions of the N.Y.C. Building Code, Section C26-1416.4(d).

RESPONSE

4. Refer to notes on Drawing #HVAC-1 and HVAC-54.1.

COMMENT

5. Dwg. #HVAC-1. Submit for review Dwg. #HVAC-54.1, referred to on this drawing regarding fuel oil piping flow diagram. (C26-110.2).

RESPONSE

5. Dwg. #HVAC-54.1 is submitted for review.

COMMENT

6. Dwg. #HVAC-1. Please coordinate symbols used for the designation of the 1st floor auditorium unit with the symbols shown on drawings #HVAC-52.4 and #HVAC-55 and refer these drawings on the HVAC-1 drawing. (C26-110.2).

RESPONSE

6. Will comply.

COMMENT

7. Dwg. #HVAC-31. Indicate the volume of ventilation air for which the 24 x 36 outside air duct is intended to be balanced. (C26-116.3).

RESPONSE

7. Will comply.

COMMENT

8. Dwgs. #HVAC-34, HVAC-35 and HVAC-44. Revise the arrangement of air flow for the Halon Purge system to ensure its effectiveness in conformance with the requirements of the Fire Department Directive 3-74. Note that halon gas is much heavier than air and its effective purge can be accomplished only by air inlets at the bottom of the halon protected space.

RESPONSE

8. Exhaust air inlets for halon purge are provided at both high and low points of the battery room for effective exhaust. See dwg. HVAC-34 (sections B-B and C-C) for clarification. Transfer ducts are also located at high and low points of the wall separating the battery and UPS rooms for proper exhaust.

COMMENTS

9. Dwg. #HVAC-34, Section B-B. Please clarify the connections of fan intake ducts to the 24 x 10 vertical duct in battery room. Also please determine the areas of all window louvers. (C26-110-2).

RESPONSE

9. See section "C-C" provided for clarification of connection to 24 x 20 duct in battery room.

COMMENTS

10. Dwg. #HVAC-38. Please provide designations of all air handling equipment shown on this drawing and refer it to schedules on Dwg. #HVAC-55 to clearly determine its operating parameters. (C26-116.3). Also, for all equipment in excess of 15,000 CFM capacity show on the drawing the physical locations of smoke dampers and duct mounted smoke detectors in conformance with Building Code RS 13-1, Section 2-4.1.2.

RESPONSE

10. Air handlers for the existing MER are to be the original base building units prepurchased by the owner. As a result they will not appear as scheduled equipment on Dwg. HVAC-55. Air handlers for the new west MERs have already

been located, scheduled and provided with smoke detectors and smoke dampers. Smoke dampers and detectors shall be provided for the auditorium air hanlder AHU 38-9.

COMMENTS

11. Dwgs. #HVAC-52.3 and HVAC-52.4. Please provide sections and/or elevations as required to clarify the relations between smoke exhaust fans SX-40-1 and SX-42-1 and outside air intake ductwork. Also, please determine the net (free) areas of all window louvers shown on these drawings. (C26-116.3).

RESPONSE

11. See note on Dwg. HVAC-52.4 (40-43rd Floors West MER) reference Dwg. HVAC-52.3 and 52.4 for sections and details of smoke exhaust fans SX-40-1 and SX-42-1.

COMMENTS

12. Dwg. #HVAC-52.5. Show the physical locations of duct mounted smoke detectors in all air handling unit discharge ducts. (C6-116.3.(a)).

RESPONSE

12. Will comply.

ELECTRICAL RESPONSES TO PA COMMENTS

COMMENTS

2. Dwg. #E-R1. Increase size of equipment grounding conductors to agree with N.Y.C. Electrical Code Section B30-97.9, Table 1. For example, the equipment grounding conductor for use with size #500-MCM feeders shall be size #1/0 instead of size #2.

RESPONSE

2. See revised Dwg. #E-R1. Equipment ground conductor size increased to comply with N.Y.C.E.C. Section B30-97.0 Table 1.

COMMENTS

3. Dwg. #E-R1 and E-R3, E-S1, E-S2, E-S3, Specifications. Submit short-circuit calculations, and also submit tabulation of short-circuit ratings for buses, fuses, switches and circuit breakers, with corresponding values of short-circuit current. N.Y.C. Electrical Code Sections B30-44.0, B30-44.1, B30-59.0; NEC Sections 110-9, 110-10. (Modified repeat comment)

RESPONSE

3. Short circuit study will be submitted when all information is available from shop drawing submittals.

HVAC RESPONSES TO PA COMMENTS

COMMENT

4. Dwg. #HVAC-52.6. Submit copies of BS&A or MEA approvals for the new water chillers CD47-1 and CH47-3. Also, on Dwg. #HVAC-55 provide schedule for these chillers and list their operating weight. See N.Y.C. Building Code, Sections C26-110.2 and C26-116.3

RESPONSE

See attachement for MEA approvals and equipment cut. This equipment is being prepurchased by the tenant and therefore will not be scheduled.

COMMENT

5. Dwg. #HVAC-52.6, Typical Security Closet Ventilation Detail. Please clarify on the drawing the applicability of this detail and relate it to the base building HVAC system. (C26-110.2).

RESPONSE

5. Security closets are typically located on Floors 29-43 adjacent to column line 60 as indicated on this detail. Refer to architectural drawing for relation to remainder of floor space. Active ventilation for this area will be provided from the main supply systems as part of the tenant work and therefore final connections are not shown on this drawing.

ELECTRICAL RESPONSES TO PA COMMENTS

COMMENT

1. Specifications Section 16006, High Voltage Switchgear, p. 16006-3. Verify that the 1000 MVA interrupting rating is sufficient for the current available from the utility on short circuit. N.Y.C. Electrical Code Section B30-248.0-b, NEC Sections 110-9, 110-10, 230-65.

RESPONSE

1. The new high voltage switchgear matches the existing high voltage switchgear. Attached is an excerpt from General Electric's Original Power System Study for the building verifying that the equipment rating is sufficient for the available utility short circuit current. General Electric is preparing a new study for the expanded facility; we will forward this study when it is completed.

COMMENT

2. Dwg. #ER-6, Partial Power Riser Diagram. Clarify how the two sets of 500 MCM conductors between Riser R and panel DH35F are protected against overcurrent, and the manner of their termination in DH35F; coordinate with the riser diagram of Dwg. #E-R3. N.Y.C. Electrical Code Section B30-82.0.

RESPONSE

2. The two sets of 500 MCM conductors are protected by an 800 amp fused switch. This is shown on Dwg. E-S2 dated May 22, 1989 attached.

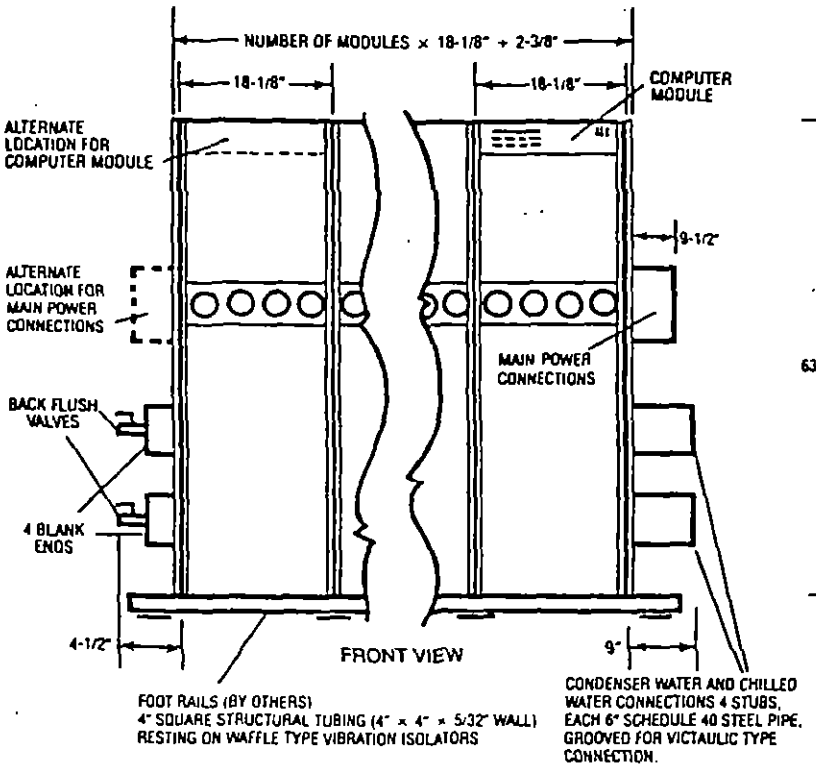
COMMENT

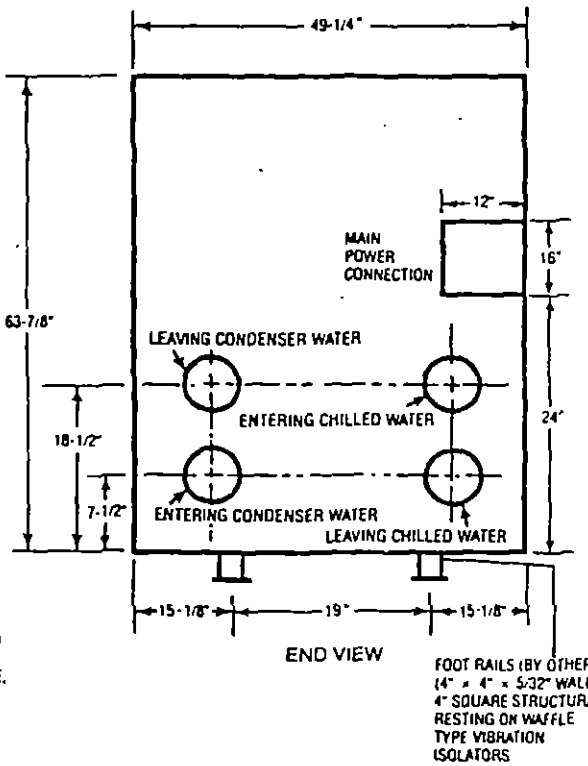
3. Dwgs. #E-R1, E-R2, E-R3, ER-5, E-S1, E-S3, Specifications. Submit short-circuit calculations, and also submit tabulation of short-circuit ratings for buses, fuses, switches and circuit breakers, with corresponding values of short-circuit current. N.Y.C. Electrical Code Sections B30-44.0, B30-44.1, B30-59.0; NEC Sections 110-9, 110-10. (Modified repeat comment)

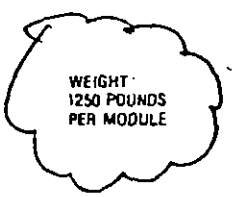
RESPONSE

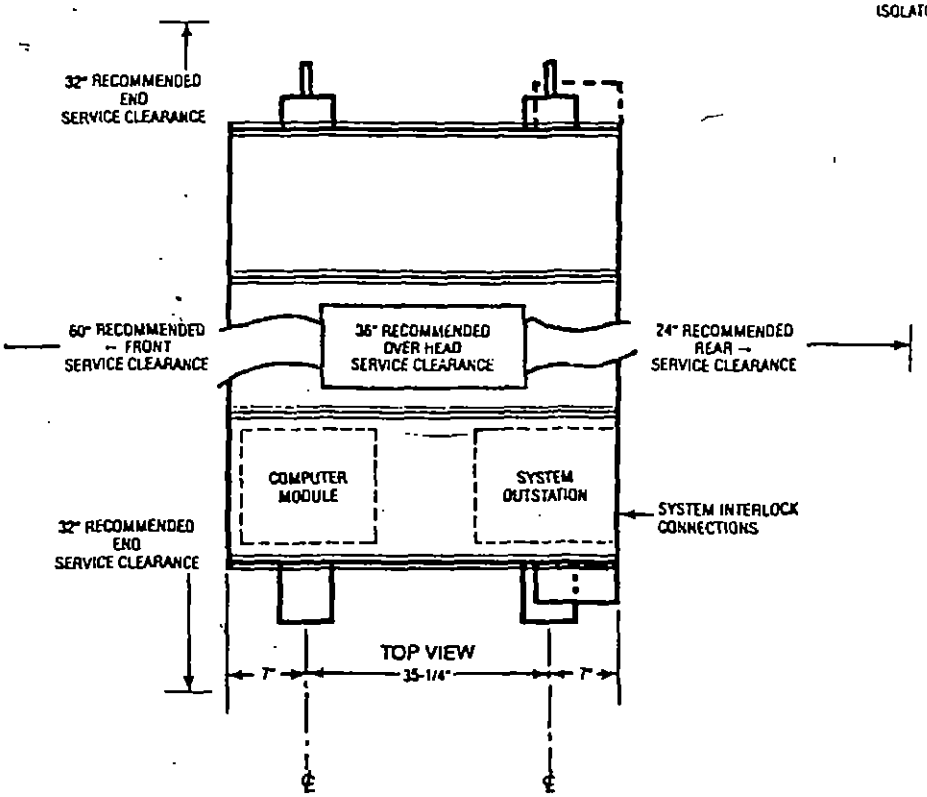
3. Short circuit study will be submitted along with the new Power System noted in item 1 above when all information is available from shop drawings. Short circuit ratings for panelboard etc. are noted on schedule sheets and in specifications.

MULTISTACK™
PATENT PENDING









ASHCOR

Ashcor New York, Inc.
505 Eighth Avenue
New York, NY 10018
(212) 564-8900
FAX: (212) 564-8962

June 28, 1989

Flack & Kurtz
475 Fifth Avenue
New York, NY 10017

Att: Tony Battaglia
Re : Salomon Brothers/Multistack

Dear Tony,

With reference to our telephone conversation today, I would like to confirm that Multistack's MEA number is 127-88E.

Please call if you have any other questions.

Yours Sincerely,

FOR GORDON HERR.

Gordon L. Herr

GLH/ap

Power System Study
for
World Trade Center
Building #7
New York, New York

THE PORT AUTHORITY OF N.Y. & N.J.
RECEIVED
05
W-7004 (16)
ALTERATION APPLICATION

Apparatus & Engineering Services

GENERAL ELECTRIC

USA

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1.2 Purpose
1.3 Data

II. Summary of Results

Short Circuit Study
Coordination Study

III. Short Circuit Study

3.1 Discussion
3.2 Short Circuit Duty Tabulation (Table 1)
3.3 One Line Diagram

IV. Coordination Study

4.1 Discussion
4.2 TCC Discussion
4.3 Miscellaneous
4.4 Time Current Curves
4.5 Relay Settings

V. Short Circuit Calculation Procedures

5.1 Procedures
5.2 Data Reduction Program
5.3 First Cycle Short Circuit Calculation
5.4 Interrupting Duty Short Circuit Calculations

VI. Protective Device Coordination Procedures

VII. Appendix - Con Edison Letter

INTRODUCTION

1.1 Scope

This report describes the Short Circuit Analysis and Coordination Study performed on the Electrical Power System of the World Trade Center #7 Building in New York, New York.

The study has been performed by the General Electric Company, Apparatus and Engineering Service Division located in Paramus, New Jersey.

The study encompasses the power distribution system from its point of connection at the utility system down to and including the collector bus equipment on the load side of the network protectors.

1.2 Purpose

The purpose of the short circuit study is to calculate the available fault currents throughout the power system and compare these values with the short circuit ratings of the protective equipment to verify that they have been applied within their ratings. A tabular comparison of protective device ratings and calculated available fault current has been provided under tab number 3.

In addition, the calculated available fault current data was used in the evaluation of protective device settings in the coordination study.

The purpose of the coordination study was to evaluate the system operation under fault conditions and choose the protective device settings which would provide the greatest degree of protection while maintaining optimum selectivity. A properly coordinated power distribution system should ensure the protection of the system equipment while allowing continuity of service to as large a portion of the unfaulted system as possible.

1.3 Data

Information required to perform this study was obtained from drawings provided by Syska & Hennessy, New York, N.Y., and General Electric Company, CESD, Rye, New York.

The data for the available fault current on the incoming 13.8KV feeders was obtained from Consolidated Edison. A copy of this data may be found in the Appendix, Section 7.

SECTION II

Summary of Results

A summary of the results of each study performed is as follows:

Short Circuit Study

The maximum short circuit duties were calculated for devices in the 13.8 KV and 480V distribution systems. A momentary calculation was performed so that the "close and latch" rating of the breakers could be verified. In addition, an interrupting calculation was made to verify the circuit breakers were applied within their interrupting rating.

In all cases each breaker has been applied safely within both their momentary and interrupting ratings. However, the available fault current is at 90% of the interrupting rating of the breakers. Any increase in the available power from the utility should be carefully analyzed to verify that the ratings of the breakers are not exceeded as this could pose a serious and dangerous safety hazard. The fuses were also applied within their interrupting ratings.

A tabulation of calculated duties to device ratings has been placed in Section 3.

Protective Device Coordination Study

The electrical power distribution system has been analyzed from its point of connection to the electric utility down to the take-off fuses on the load side of the collector bus.

The settings of the utility relays severely restrict the settings of downstream protective devices thereby seriously affecting coordination. Since the relaying on the utility, main and feeder breakers are all equipped with instantaneous devices, an overcurrent due to a short circuit on any feeder would inevitably cause the loss of the whole substation. Therefore, it is recommended that the instantaneous devices on the main relays and on the utility relays be disabled. In addition, the time dial setting on the utility time overcurrent relay should be increased to allow for coordination between the feeder, main and utility relays.

The relay settings selected are based upon the American National Standards Institute (ANSI) and the National Electric Code (NEC) equipment protection requirements.

SECTION III

Short Circuit Study

3.1 Discussion

Short circuit studies are necessary to determine the first cycle and/or interrupting duties of circuit protective devices, such as circuit breakers, fuses, etc. to verify that the ratings of existing or proposed equipment have been properly selected. They are also necessary to determine the magnitude of short circuit currents in the various elements of the system for specific types of faults so that relays and circuit breaker trip devices may be properly set and coordinated.

The system one line diagram provided by Syska and Hennessy Engineers of New York, New York, drawing E-23, has been condensed and redrawn to show only that portion of the system under evaluation. The drawing, included in this section, has been assigned bus numbers at which points fault duty calculations have been made.

Copies of the short circuit program output are included in tab 5. The values that appear in Table I are taken directly from the output sheets. The multiplier on the close and latch duty can be one of two values. One is based upon a

symetrical current multiplied by 1.6 and the second value is found by utilizing a multiplier associated with the X/R ratio of the circuit. ANSI Standard C37.010 permits the use of either value. The value based upon 1.6 x the symetrical current was used.

Table I is a tabulation which provides a comparison of calculated duties to protective device ratings. In all cases each circuit breaker and fuse has been applied within its rating.

The interrupting rating of the circuit breaker is the level of fault current at which the breaker will safely operate. The available fault current from the utility is now approximately 90% of the breaker's interrupting rating. Any increase in the available fault current from the utility in the future could possibly cause these breakers to be applied beyond their rating. If this occurred, the breakers could not be relied upon to safely handle the thermal and mechanical stresses associated with short circuit currents.

M 3.2

TABLE 1

BUS NO.	LOCATION		SWITCHGEAR DATA					CALCULATED DUTIES		NOTES
	NAME	kV	TYPE	MFGR.	STD.	MOM. kA	INT. kA SYM.	MOM. kA	INT. kA SYM	
	SUBSTATION # 1									
2	MAIN 102A	13.8	VB 13.8-1000-3	GE	5 SYM	77	40.2	58.38	36.49	
6	FEEDER 202A	13.8	VB 13.8-1000-3	GE	5 SYM	77	40.2	58.07	36.29	
6	FEEDER 201B	13.8	VB 13.8-1000-3	GE	5 SYM	77	40.2	58.07	36.29	
6	FEEDER 202B	13.8	VB 13.8-1000-3	GE	5 SYM	77	40.2	58.07	36.29	
	SUBSTATION # 2									
3	MAIN 302A	13.8	VB 13.8-1000-3	GE	5 SYM	77	40.2	58.07	36.29	
7	FEEDER 402A	13.8	VB 13.8-1000-3	GE	5 SYM	77	40.2	57.77	36.10	
7	FEEDER 401B	13.8	VB 13.8-1000-3	GE	5 SYM	77	40.2	57.77	36.10	
7	FEEDER 402B	13.8	VB 13.8-1000-3	GE	5 SYM	77	40.2	57.77	36.10	
	SUBSTATION # 3									
4	MAIN 502A	13.8	VB-13.8-1000-3	GE	5 SYM	77	40.2	57.51	35.95	
8	FEEDER 602A	13.8	VB-13.8-1000-3	GE	5 SYM	77	40.2	57.21	35.76	
8	FEEDER 601B	13.8	VB-13.8-1000-3	GE	5 SYM	77	40.2	57.21	35.76	
8	FEEDER 602B	13.8	VB-13.8-1000-3	GE	5 SYM	77	40.2	57.21	35.76	

TABLE 1 (continued)

BUS NO.	LOCATION		SWITCHGEAR DATA					CALCULATED DUTIES		NOTES
	NAME	kV	TYPE	MFGR.	STD.	MOM. kA	INT. kA SYM.	MOM. kA	INT. kA SYM	
	SUBSTATION #4									
5	MAIN 702A	13.8	VB-13.8-1000-3	GE	5 SYM	77	40.2	56.77	35.48	
9	FEEDER 802A	13.8	VB-13.8-1000-3	GE	5 SYM	77	40.2	56.48	35.30	
9	FEEDER 801B	13.8	VB-13.8-1000-3	GE	5 SYM	77	40.2	56.48	35.30	
9	FEEDER 802B	13.8	VB-13.8-1000-3	GE	5 SYM	77	40.2	56.48	35.30	
	COLLECTOR BUS #1									
34	N-5 Network Fuse	.48	A4BY Fuse	GOULD		200		148.28		
34	T-51 Take-off Fuse	.48	A4BY	GOULD		200		148.28		
	COLLECTOR BUS #2									
35	N-5 Network Fuse	.48	A4BY Fuse	GOULD		200		148.45		
35	T-51 Take-off Fuse	.48	A4BY	GOULD		200		148.45		
	COLLECTOR BUS #3									
36	N-5 Network Fuse	.48	A4BY	GOULD		200		148.14		
36	T-51 Take-off Fuse	.48	A4BY	GOULD		200		148.14		

Con Edison
Manhattan Division
Consolidated Edison Company of New York, Inc.
708 First Avenue, New York, N. Y. 10017

April 11, 1985

RE: 7 World Trade Center
Permanent Electric Service
Layout No. S84-2208

Mr. Terry M. Beck
General Electric Company
Paramus Plaza IV
12 Route 17 North
Paramus, N.J. 07652

Dear Mr. Beck:

In response to your letter of February 15, 1985 our response is as follows:

(1) The maximum short circuit current available, at this location, is 13∅ = 39,120 Amps at 13.8kV. The equivalent 13.8kV short circuit impedance is 0.00316 + 0.107 P.U. at 100 MVA base.

(2) The esisting relay settings at the Con Ed Substation are as follows:

A - Phase O.C. relay settings:
Relay Type - CO-7 (Westinghouse)
Time Delay element set at 1440A P.U.
(4320A - 0.24 sec.)
Instantaneous element set at 6000A P.U.

B Ground O.C. relay settings:
Relay Type CO-2 (Westinghouse)
Time Delay element set at 480A P.U.
(1440A - 0.28 sec.)

If you have any further questions regarding this matter, please do not hesitate to call me at 576-2604.

Very truly yours,

Richard L. Mark

Richard L. Mark
Commercial Service Representative
Manhattan Major Services

cc: Mr. Jasbir Bhatia
Syska & Hennessy, Inc.
11 West 42 Street
New York, NY 10036

Emil Suhrada

James Siravo

Jerry Stricoff

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

M E M O R A N D U M

To: Mr. R. Linn, Deputy Director for Physical Facilities, WT&ED
From: Ennala Ramabhushanam
Date: June 22, 1989
Subject: WTC - ALTERATION APPLICATION #W-7004 - SALOMON BROTHERS - 7 WTC - BASE BUILDING MODIFICATIONS

Reference: Tenant Alteration Review Request, dated 5/31/89 and 6/5/89

Copy To: L. Sanchez A. Vaccaro Job Folder
Chrono Folder

A review of the material submitted with the referenced request for the subject application has been made.

The previous recommendation of approval to proceed with construction remains unchanged subject to the submission of the items listed below being revised in accordance with the five (5) requirements listed on the attached rider, as well as the outstanding comments from the following memoranda:

- Memo, E. Rama to R. Linn, dated 5/23/89; comments 3 through 8, inclusive.
- Memo, E. Rama to R. Linn, dated 6/15/89 comments 2, and 4 through 12, inclusive.

Code Analyses:

Drawings:

Specifications:

REMARKS: 1) This memorandum was transmitted to the Facility via OA on June 22, 1989.

Ennala Ramabhushanam, P.E.
Manager
Quality Assurance Division

JPV/dm
att.

RIDER

ALTERATION APPLICATION #W-7004

ELECTRICAL

1. Specifications Section 16006, High Voltage Switchgear, p. 16006-3. Verify that the 1000 MVA interrupting rating is sufficient for the current available from the utility on short circuit. N.Y.C. Electrical Code Section B30-248.0-b, NEC Sections 110-9, 110-10, 230-65.

2. Dwg. #ER-6, Partial Power Riser Diagram. Clarify how the two sets of 500 MCM conductors between Riser R and panel DH35F are protected against overcurrent, and the manner of their termination in DH35F; coordinate with the riser diagram on Dwg. #E-R3. N.Y.C. Electrical Code Section B30-82.0.

3. Dwgs. #E-R1, E-R2, E-R3, ER-6, E-S1, E-S2, E-S3, Specifications. Submit short-circuit calculations, and also submit tabulation of short-circuit ratings for buses, fuses, switches, and circuit breakers, with corresponding values of short-curcuit current. N.Y.C. Electrical Code Sections B30-44.0, B30-44.1, B30-59.0; NEC Sections 110-9, 110-10. (Modified repeat comment)

MECHANICAL

4. Dwg. #HVAC-52.6. Submit copies of BS&A or MEA approvals for the new water chillers CH47-1, CH47-2 and CH47-3. Also, on Dwg. #HVAC-55 provide schedule for these chillers and list their operating weight. See N.Y.C. Building Code, Sections C26-110.2 and C26-116.3.

5. Dwg. #HVAC-52.6, Typical Security Closet Ventilation Detail. Please clarify on the drawing the applicability of this detail and relate it to the base building HVAC system. (C26-110.2).

062289

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

M E M O R A N D U M

To: Mr. R. Linn, Deputy Director for Physical Facilities, WT&ED
From: Ennala Ramabhushanam
Date: June 15, 1989
Subject: WTC - ALTERATION APPLICATION #W-7004 - SALOMON BROTHERS - 7 WTC - BASE BUILDING MODIFICATIONS

Reference: Tenant Alteration Review Request, dated 5/26/89 and 6/5/89

Copy To: L. Sanchez A. Vaccaro Job Folder
Chrono Folder

A review of the material submitted with the referenced request for the subject application has been made.

The previous recommendation of approval to proceed with construction remains unchanged subject to the submission of the items listed below being revised in accordance with the twelve (12) requirements listed on the attached rider, as well as the outstanding comments from the following memorandum:

- Memo, E. Rama to R. Linn, dated 5/23/89; comments 3 through 7 .

Code Analyses:

Drawings:

Specifications:

REMARKS: 1) This memorandum is supplemental to the Quality Assurance memorandum dated 6/8/89.

2) Comments #1, and #3 to #8 inclusive of Quality Assurance memo dated 5/23/89 are outstanding.

2) This memorandum was transmitted to the Facility via OA on June 15, 1989.

Ennala Ramabhushanam, P.E.
Manager
Quality Assurance Division

JPV/dm
att.

RIDER

ALTERATION APPLICATION #V-7004

ARCHITECTURAL

1. Dwg. #A-31, Detail A. Clarify function of access panel shown in exit stair. Verify compliance with C26-604.8(j), Openings in Stair Enclosures.

ELECTRICAL

2. Dwg. #E-R1. Increase size of equipment grounding conductors to agree with N.Y.C. Electrical Code Section B30-97.0, Table 1. For example, the equipment grounding conductor for use with size #500-MCM feeders shall be size #1/0 instead of size #2.

3. Dwgs. #E-R1, E-R2, E-R3, E-S1, E-S2, E-S3, Specifications. Submit short-circuit calculations, and also submit tabulation of short-circuit ratings for buses, fuses, switches, and circuit breakers, with corresponding values of short-circuit current. N.Y.C. Electrical Code Sections B30-44.0, B30-44.1, B30-59.0; NEC Sections 110-9, 110-10. (Modified repeat comment)

MECHANICAL

4. Dwg. #HVAC-1. Show the physical location and the manner of termination for the fuel oil vent pipe in conformance with all provisions of the N.Y.C. Building Code, Section C26-1416.4(d).

5. Dwg. #HVAC-1. Submit for review Dwg. #HVAC-54.1, referred to on this drawing regarding fuel oil piping flow diagram. (C26-110.2).

6. Dwg. #HVAC-1. Please coordinate symbols used for the designation of the 1st floor auditorium unit with the symbols shown on drawings #HVAC-52.4 and #HVAC-55 and refer these drawings on the HVAC-1 drawing. (C26-110.2).

7. Dwg. #HVAC-31. Indicate the volume of ventilation air for which the 24 x 36 outside air duct is intended to be balanced. (C26-116.3).

8. Dwgs. #HVAC-34, HVAC-35 and HVAC-44. Revise the arrangement of air flow for the Halon Purge system to ensure its effectiveness in conformance with the requirements of the Fire Department Directive 3-74. Note that halon gas is much heavier than air and its effective purge can be accomplished only by air inlets at the bottom of the halon protected space.

9. Dwg. #HVAC-34, Section B-B. Please clarify the connections of fan intake ducts to the 24 x 10 vertical duct in battery room. Also please determine the areas of all window louvers. (C26-110-2).

10. Dwg. #HVAC-38. Please provide designations of all air handling equipment shown on this drawing and refer it to schedules on Dwg. #HVAC-55 to clearly determine its operating parameters. (C26-116.3). Also, for all equipment in excess of 15,000 CFM capacity show on the drawing the physical locations of smoke dampers and duct mounted smoke detectors in conformance with Building Code RS 13-1, Section 2-4.1.2.

11. Dwgs. #HVAC-52.3 and HVAC-52.4. Please provide sections and/or elevations as required to clarify the relations between smoke exhaust fans SX-40-1 and SX-42-1 and outside air intake ductwork. Also, please determine the net (free) areas of all window louvers shown on these drawings. (C26-116.3).

12. Dwg. #HVAC-52.5. Show the physical locations of duct mounted smoke detectors in all air handling unit discharge ducts. (C26-116.3.(a).

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

M E M O R A N D U M

To: Mr. R. Linn, Deputy Director for Physical Facilities, WT&ED
From: Ennala Ramabhushanam
Date: June 8, 1989
Subject: WTC - ALTERATION APPLICATION #W-7004 - SALOMON BROTHERS - 7 WTC - BASE BUILDING MODIFICATIONS - 5TH FLOOR ELECTRICAL PLANT

Reference: Buckslip request, L. Sanchez to P. Cooper dated 6/1/89

Copy To: L. Sanchez A. Vaccaro Job Folder
Chrono Folder

A review of the material submitted with the referenced request for the subject application has been made.

It is recommended that approval to proceed with construction be granted.

There are no comments.

Drawings: The following drawings are recommended for approval:

Dwg. #A-5	revised	5/22/89
#A-200 (detail 1-7)	revised	5/22/89
#HVAC-4 & 5	revised	5/22/89
#P-5	revised	5/22/89

REMARKS:
1) This memorandum was transmitted to the Facility via OA on June 8, 1989.

2) The above noted drawings were extracted for expedited reviewing at the request of L. Sanchez from the review request package dated May 26, 1989, and received by TCRU on May 30, 1989, and the recommendation to proceed with construction applies only to these drawings.

3) Any comments resulting from the review of the balance of the drawings from the May 26, 1989 review request, will be issued in a supplemental memorandum.

Ennala Ramabhushanam, P.E.
Manager
Quality Assurance Division

JPV/dm

6/5

PA 2127
1-85

TENANT ALTERATION REVIEW REQUEST

✓	CHECK APPLICABLE ROUTING	ROOM NO.
	Engineering (T.C.R.U.) 51	~~1006~~
	Risk Management – JSTC – Zip 43	6 FL
	Operations Standards – JSTC – Zip 75	5 FL
	Terminal Properties Div.	56S
	Control Desk	
	Facility Manager –	
	Port Dept. - Planning Div.	64S
	Aviation Technical Services Div.	65S
	Air Terminal Properties Div.	
	JFK – Business Administration – Zip 6	
	NIA – Business Administration – Zip 19	
	Marine Development & Rentals Div.	71E
	Inspection & Safety	
	Resident Engineer	
	A. VACCARO } 3861	
	P. CAVANAGH }	
	R. LINN 63W	
	E. McNIERNEY 745	

Description of Work: (P.A. PKG #19.5)
BASE BUILDING MODIFICATIONS
STRUCTURAL REVISIONS
TO BE INCLUDED IN
SUBMITTAL OF DRAWINGS
DATED 5.22.89 (P.A. PKG #19)

FACILITY 7 NTC
APPLICANT'S NAME SALOMON BRO.
APPLICATION NO. W-7004
DRAWING NO(S). S-1, S-2, S-24 & S-34
DATE 6, 5, 89

☑ ~~You~~ are requested to review the attached application and forward your comments to:

☐ Attached are revised drawings. Please review only those items on which exception was previously taken and send your comments to:

821	745	L. SANCHEZ	8566
Org. Unit	Room No.	Contact	Ext.

No later than JUNE 26, 1989 PROJ. ADMINISTRATOR
Title

If no reply is received by above date, your concurrence will be assumed unless arrangements have been made for additional time for review.

FOR USE OF REVIEWING DEPARTMENT

COMMENTS: (Use reverse side if necessary) Indicate next to each comment whether it is a condition or recommendation.

1- #12

#12

5/26/89

PORT AUTHORITY OF N.Y. & N.J.
TENANT ALTERATION REVIEW UNIT
RECEIVED
JUN 05 1989
W-7004 (15)
ALTERATION APPLICATION

Office Copy

L. SANCHEZ
E. McNierney for

(Please check applicable box)

☐ Approved ☐ Approved with Conditions and Recommendations Noted Above ☐ Disapproved with Requirements for Approval Noted Above ☐ Disapproved for Reasons Noted Above

Signature	Title	Date
		/ /

10/5

PA 21 7
1-85

TENANT ALTERATION REVIEW REQUEST

✓	CHECK APPLICABLE ROUTING	ROOM NO.
	Engineering (T.C.R.U.) 51	~~43WE~~
	Risk Management – JSTC – Zip 43	6 FL
	Operations Standards – JSTC – Zip 75	5 FL
	Terminal Properties Div.	56S
	Control Desk	
	Facility Manager –	
	Port Dept. - Planning Div.	64S
	Aviation Technical Services Div.	65S
	Air Terminal Properties Div.	
	JFK – Business Administration – Zip 6	
	NIA – Business Administration – Zip 19	
	Marine Development & Rentals Div.	71E
	Inspection & Safety	
	Resident Engineer	
	A. VACCARO } 3861	
	P. CAVANAGH }	
	R. LINN 63W	
	E. Mc NIERNEY 745	

Description of Work: PA PKG #21.5

BASE BUILDING MODIFICATIONS

STRUCTURAL - 47TH FLOOR FRAMING PLAN

FACILITY 7 WTC

APPLICANT'S NAME SALOMON BRO.

APPLICATION NO. W 7004

DRAWING NO(S). S-22

DATED 5.26.8

DATE 6, 5, 89

☑ You are requested to review the attached application and forward your comments to:

☐ Attached are revised drawings. Please review only those items on which exception was previously taken and send your comments to:

821	745	L. SANCHEZ	8566
Org. Unit	Room No.	Contact	Ext.

No later than JUNE 19, 1989 PROJ. ADMIN. (Title)

If no reply is received by above date, your concurrence will be assumed unless arrangements have been made for additional time for review.

FOR USE OF REVIEWING DEPARTMENT

COMMENTS: (Use reverse side if necessary) Indicate next to each comment whether it is a condition or recommendation.

PLEASE INCLUDE THIS DRAWING WITH PREVIOUS SUBMITTAL (P.A. PKG #21) DATED 5/31/89. SEE COPY OF TRANSMITTAL ATTACHED.

THE PORT AUTHORITY OF N.Y. & N.J.
TENANT CONSTRUCTION REVIEW UNIT
RECEIVED
JUN 05 1989
W-7004 (14)
ALTERATION APPLICATION

office copy

L. SANCHEZ
E. McNierney for

(Please check applicable box)

☐ Approved ☐ Approved with Conditions and Recommendations Noted Above ☐ Disapproved with Requirements for Approval Noted Above ☐ Disapproved for Reasons Noted Above

Signature	Title	Date
		/ /

SALOMON BROTHERS INC.

BASE BUILDING MODIFICATIONS

7 WORLD TRADE CENTER

STRUCTURAL COMPUTATIONS

(MAY - 31 - 1989)

21 - -

PORT AUTHORITY OF N.Y. & N.J.
STRUCTURE REVIEW UNIT
RECEIVED
JUN 05 1989
ALTERATION APPLICATION

Office copy

W-7004 (14)

THE OFFICE OF
IRWIN G. CANTOR, P.C.
Consultir gineers
"Member Cant einuk Group"
219 EAST 42ND STREET
NEW YORK, N.Y. 10017
PHONE (212) 949-9150

JOB IWIC
SHEET NO. OF
CALCULATED BY IC FC DATE 5-31-89
CHECKED BY DATE
SCALE

47th floor NORTH-WEST CORNER AREA :

REVISE FLOOR LOADS: (1ST. SUBMISSION)

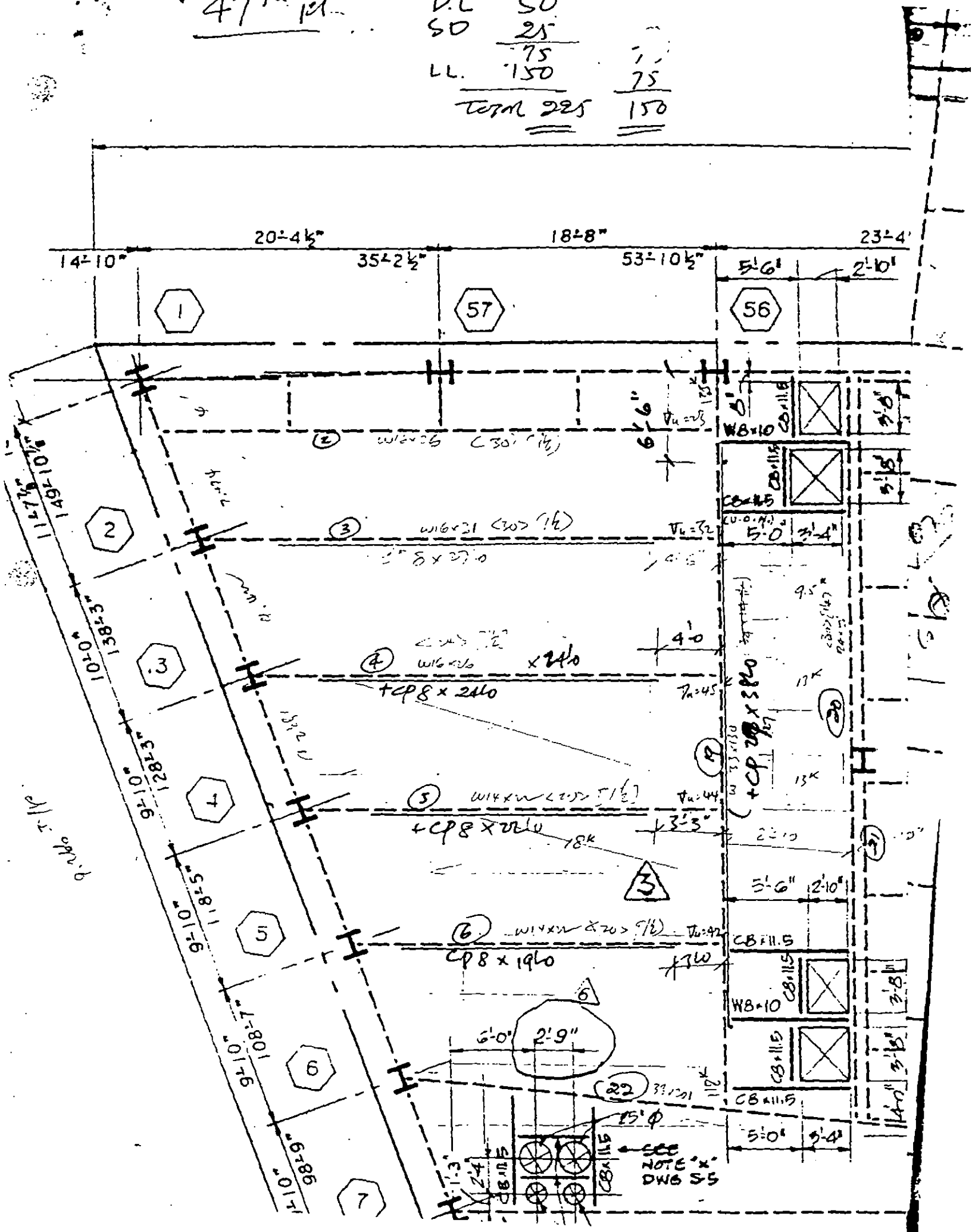
NOV. 21, 88 SUBMISSION pg 47-1 TO 47-7

THIS SUBMISSION: CHECK BEAMS CARRY
ADD'L EQUIPMENT LOADS. pg 47-1 - 47-8

PRODUCT 205-1 Inc., Groton, Mass. 01471 To Order PHONE TOLL FREE 1-800-225-6380

47th fl

D.L	50	
SD	25	
	75	
LL.	150	75
Term	225	150



THE OFFICE OF
IRWIN G. CANTOR, P.C.
Consultin[illegible] [illegible]gineers
"Member Can[illegible] [illegible]einuk Group"
219 EAST 42ND STREET
NEW YORK, N.Y. 10017
PHONE (212) 949-9150

JOB 1 WIC
SHEET NO. 47-1 OF
CALCULATED BY [illegible] DATE 5-25-89
CHECKED BY DATE
SCALE

47 + pl.

NORTH - WEST

D.L. 50
SD 25
LL 75

ADD'L EQUIV LL = 150 - 75 = 75 PSF.

pump = $\frac{13000}{7 \times 10}$ = 186 PSF

ADD'L LL = 185 - 75 = 110 PSF

(2) W16x26 <30> [1½]
L = 37.79' B = 5.737 b = 68"

D.L. Bm = 0.026
0.05 x 5.737 = 0.287
0.313

SDL 0.025 x 5.737 = 0.143
0.456 x 1.2 = .547

L.L. 0.075 x 5.737 = .430 x 1.6 = .688
0.886 1.235 k/'

TL : 17
DL : 6
ULT : 23

+Mu = 221 'K

N = 30 b = 68
ΣQ = 354 ΣQ = 505
ΣQ = 384 ~ 96

Y1 = 0.09 ΣQ = 337 a = 1.666 Y2 = 4.667 φM = 321 'K
> 221
OK

(3) W16x31 <30> [1½] b = 8.452
L = 35.13 b = 101

D.L. Bm = 0.031
.05 x 8.452 = 0.423
0.454

.025 x 8.452 = 0.211
0.665 x 1.2 = 0.798

L.L. 0.075 x 8.452 = 0.641 x 1.6 = 1.025
1.306 k/' 1.823 k/'

TL = 23 K
DL : 8
ULT 1.32

+Mu = 281 'K

N = 30 ΣQ = 354
Y1 = .22 ΣQ = 334 a = 1.112
Y2 = 4.94 φMn = 362 'K
> 281 'K
OK

PRODUCT 203-1 NEBS Inc., Groton, Mass. 01471 To Order PHONE TOLL FREE 1-800-225-6380

THE OFFICE OF
IRWIN G. CANTOR, P.C.
Consulting Engineers
"Member Cantor Seinuk Group"
219 EAST 42ND STREET
NEW YORK, N.Y. 10017
PHONE (212) 949-9150

JOB 1 WIC
SHEET NO. 47-2 OF
CALCULATED BY IC TC DATE 5-25-89
CHECKED BY DATE
SCALE

47th Floor

(4) W16×26 <24> [1/2]
L = 31.79 B = 9.345 b = 95 IN

D.L. Beam = 0.026
.05 × 9.345 = 0.467
.493
0.025 × 9.345 = .467
.96 × 1.2 = 1.152

L.L. 0.075 × 9.422/2 = .353
0.150 × 9.266/2 = .695
1.048 × 1.6 = 1.677
2.829 K/'

Y DL : 391 IN/IN
SD : 370
LL : 830
1591 / 3047 = 0.522 OK

TC : 17
DL : 8
LL : 45

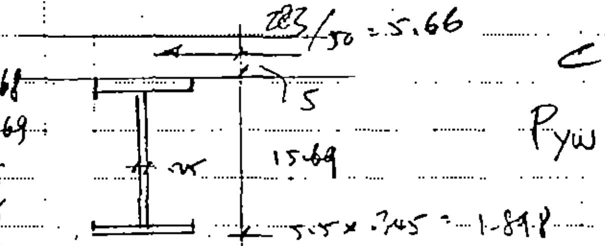
Vu = 35.7 K

b = 95
N = 24 312 : 283

TRY CP8 8×1/2 PL

a = 1.501 Y2 = 4.999"

283/50 = 5.66



As = 7.68
d = 15.69
tw = .25
b = 5.5
tf = .345
I = 301

$C = \frac{283}{50} = 5.66 > P_{yw}$

$P_{yw} = (15.69 - 2 \times .345) \times .25 = 3.75$

$\phi M_n = \frac{.85 \times 50}{12} \left\{ 0.5 (P_y - C) \left[d - \frac{P_y - C}{2 \times 5.5} \right] + C \times e \right.$

$e = \frac{15.69}{2} + 5 = 12.845$

$P_{yf} = 0.5 (A_s - P_{yw}) = .5 (7.68 - 3.75) = 1.965$

$P_y = 7.68$

$\phi M_n = \frac{.85 \times 50}{12} \left\{ 0.5 (7.68 - 5.66) \left(15.69 - \frac{7.68 - 5.66}{2 \times 5.5} \right] + 5.66 \times 12.845 \right\}$

$= 3.542 \times \{ 0.5 \times 2.02 \times (15.69 - .184) + 72.703 \}$

$= 3.542 \times \{ 15.661 + 72.703 \} = 313^{\prime K}$

PRODUCT 205-1 NEBS Inc., Groton, Mass. 01471 To Order PHONE TOLL FREE 1-800-225-6380

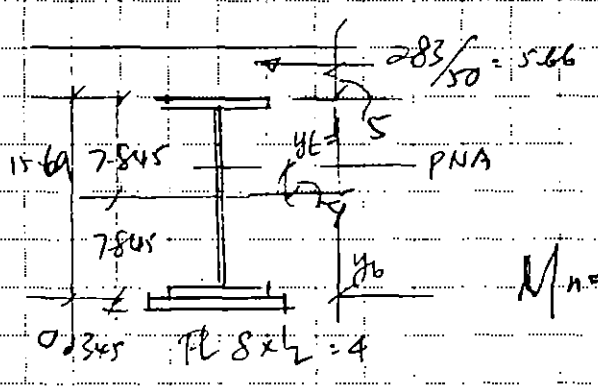
THE OFFICE OF
IRWIN G. CANTOR, P.C.
Consulting Engineers
"Member Cantor Seinuk Group"
219 EAST 42ND STREET
NEW YORK, N.Y. 10017
PHONE (212) 949-9150

JOB 7 WIC
SHEET NO. 47-8 OF
CALCULATED BY [illegible] DATE 5-25-81
CHECKED BY DATE
SCALE

47th floor

④ CONT'D

TRY CPE 8x½ PL



$\bar{y} = \frac{5.66 - 4}{2 \times .25} = 3.32$

$y_t = \frac{d}{2} - \bar{y} = 4.525$

$y_b = \frac{d}{2} + \bar{y} = 11.165$

$A_f = \frac{7.68 - 15 \times .25}{2} = 1.965$

$M_n = 5.66 \times 9.525$
4×11.415
$1.965 \times (15.345)$
$+ (4.525^2 + 11.165^2 - 2 \times 15.69 \times .345 + 2 \times .345^2) \times \frac{1}{2} \times .25$
129.734

$= 53.912 + 45.66 + 30.153 + 16.818 = 146.543$

$\phi M_n = \frac{.85 \times 146.543 \times 50}{12} = 5.9$ 'K OK

I_{STL}

$7.68 \times 8.345 = 64.09$
$4 \times 0.25 = 1.00$
$11.68 \quad 65.09$

$2.772^2 = 59.013 \quad 301$
$5.323^2 = 113.337$
$172.25 + 301 = 473$

$\bar{y} = 5.573$ $\quad I_s = 473$

I composite: $b = 95$ $\quad b/n = 11.176$ $\quad A_c = 27.941$

$11.68 \times 5.573 = 65$
$27.94 \times 20.44 = 571.094$
$29.62 \quad 636.094$

$15.902 = 2953.62 + 473$
$1.035 = 29.93 + 14$
$2983.55 \quad 487$

$y_b = 21.475$ $\quad \Sigma I_{tr} = 3471$

$I_{eff} = 473 + \sqrt{\frac{283}{384}}(3471 - 473) = 3047$

PRODUCT 205-1 NEBS Inc., Groton, Mass. 01471 To Order PHONE TOLL FREE 1-800-225-6380

THE OFFICE OF
IRWIN G. CANTOR, P.C.
Consult[illegible] [illegible]ngineers
"Member Ca[illegible] Seinuk Group"
219 EAST 42ND STREET
NEW YORK, N.Y. 10017
PHONE (212) 949-9150

JOB [illegible]
SHEET NO. 47-4 OF
CALCULATED BY [illegible] DATE 5-25-87
CHECKED BY DATE
SCALE

47th pl

(5) W14x22 <20> [1½]
L = 28.5 B = 9.27 b = 85 in

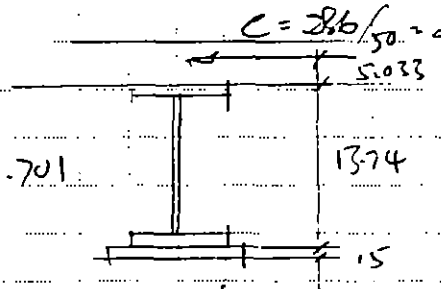
DL B[illegible] = 0.022
0.05 × 9.27 = 0.464
0.486
SD 0.025 × 9.27 0.232
0.718 × 1.2 = 0.862
LL 0.150 × 9.27 = 1.391 × 1.6 = 2.225
2.109 3.087 k/'

TL : 30
DL : 7
ULT : 44

+ M_u = 314 'k

DL : 249
SD : 119
LL : 712
1080/1541 = 0.701

a = .933 Y2 = 5.033
C = 236/50 = 4.72



$\bar{y} = \frac{4.72 - 4}{2 \times .23} = 1.565$

y_t = 5.305
y_b = 8.435

TRY CP8 8 x ½ PL.
As = 6.49
d = 13.74
tw = 0.23
b = 5
tf = .335
I = 199

$A_f = \frac{6.49 - 13.07 \times .23}{2}$
= 1.742

M_n = 4.72 × 10.338 + 4 × 8.685 + 1.742 × 13.405
+ (5.305² + 8.435² − 2 × 13.74 × .335 + 2 × .335²) × ½ × .23
= 48.795 + 34.74 + 23.352 + 10.386 = 117.273

$\phi M_n = \frac{.85 \times 50 \times 117.273}{12}$ = 4.5 'k > 314 ok

I STL =
6.49 × 7.37 = 47.831 2.715² = 47.839 199
4 × 0.25 = 1.00 4.405² = 77.616 ✓
10.49 48.831 125.455 199

b = 85 b/n = 10 Ac = 25

y = 4.655 ΣI = 325 in⁴

I comp.
10.49 × 4.655 = 48.831 9.746² = 996.327 325
25.00 × 18.49 = 462.25 4.089² = 417.998 13
35.49 511.081 1414.325 338

y = 14.401 ΣIt = 1752

$I_{eff} = 325 + \sqrt{\frac{236}{325}}(1752 - 325) = 1541$

PRODUCT 205-1 [illegible] Inc., Groton, Mass. 01471 To Order PHONE TOLL FREE 1-800-225-6380

THE OFFICE OF
IRWIN G. CANTOR, P.C.
Consulti[illegible]ngineers
"Member Ca[illegible] Seinuk Group"
219 EAST [illegible]ND STREET
NEW YORK, N.Y. 10017
PHONE (212) 949-9150

JOB
SHEET NO. 47-5 OF
CALCULATED BY DATE
CHECKED BY DATE
SCALE

47 + FL.

6) W14 x 22 <20> [1½]
L = 25.21 B = 10'-0 ± b = 75"

DL B = 0.022
.05 x 10 = 0.500
.522

.025 x 10 = 0.25
0.775 x 1.2 = 0.93
LL .15 x 10 = 1.50 x 1.6 = 2.40
2.275 3.33

T TL = 29 K
DL = 7
LL = 42

+ M_u = 265 'K

use CP8 x 19'-0

same as (5).

PRODUCT 205-1 NEBS Inc., Groton, Mass. 01471 To Order PHONE TOLL FREE 1-800-225-6380

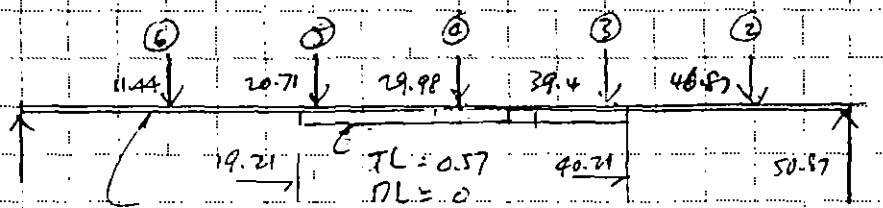
THE OFFICE OF
IRWIN G. CANTOR, P.C.
Consulti[illegible] Engineers
"Member Can[illegible], Seinuk Group"
219 EAST 42ND STREET
NEW YORK, N.Y. 10017
PHONE (212) 949-9150

JOB 7 W/C
SHEET NO. 47 OF
CALCULATED BY [illegible] DATE 5-24-89
CHECKED BY DATE
SCALE

47th Fl.

(19)

TL	29	30	17	23	TL 17
DL	7	7	8	8	DL 6
ULT	42	44	45	32	ULT 23

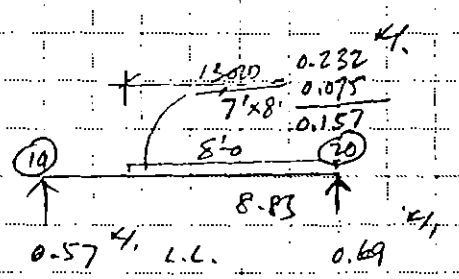


TL = 76
DL = 21
ULT = 118 k

TL = 0.661
DL = 0.221
ULT = .925 k/'

TL = 86 k
DL = 27
ULT = 135

W33 x 130



DL 0.050 x 4.415 = .221
SD 0.075 x 4.415 = .110
.331 x 1.2 = .397

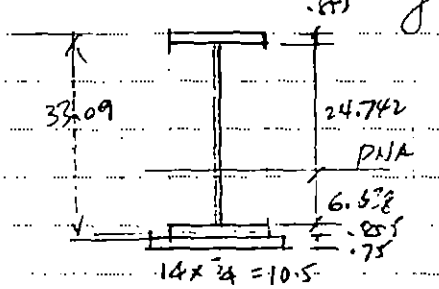
LL = 0.075 x 4.415 = 0.33 x 1.6 = .528
0.661 k/' .925

TL = 18496
DL = 5259
LL = 13237

$\phi M_n = 1872$ 'k (27.99) → $\phi M = 1750$
use 14 x 3/4" Bottom Pl $\phi M = 2238$ 'k

TRY 14 x 3/4" Pl

$\log = 38.3$
$d = 33.09$
$t_w = .580$
$b = 11.51$
$t_f = .855$
$I = 6710$



$y_{PNA} = \frac{38.3 - 10.5 - 10.05 - 10.05}{2 \times 0.58} = 6.638$ OK

$A_f = \frac{38.3 - (33.09 - 2 \times .855) \times .58}{2} = 10.05$

$\phi M_n = \frac{.9 \times 50}{12} \left\{ 10.5 \times 7.868 + 10.05 \times 32.285 + (6.638^2 + 24.742^2) \times \frac{1}{2} \times .58 \right\}$

$= 3.75 \times \{ 82.614 + 323.962 + 190.307 \} = 3.75 \times 596.882 = 2238$ 'k

$10.5 \times 0.775 = 3.938$
$38.3 \times 17.295 = 662.799$
$48.8 \quad 666.336$

$y = 13.654$

$13.279^2 = 1851.603$
$3.641^2 = 507.739$
2359.742
6710
$\Sigma I = 9069$

PRODUCT 205-1 NEBS Inc., Groton, Mass 01471 To Order PHONE TOLL FREE 1-800-225-6380

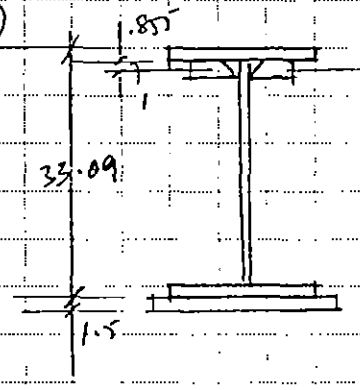
THE OFFICE OF
IRWIN G. CANTOR, P.C.
Consulti[illegible]gineers
"Member Can. Seinuk Group"
219 EAST 42ND STREET
NEW YORK, N.Y. 10017
PHONE (212) 949-9150

JOB [illegible]
SHEET NO. 47 - 1/2a OF
CALCULATED BY DATE
CHECKED BY DATE
SCALE

47 to pl

CP27 14×1½ BPL + Top PL 2×4×2

(19)



$\left(\frac{4+3.5}{2}\times 2\right)\times 2 = 15$

$14\times 1\frac{1}{2} = 21$

I = 6710

21 × 0.75 = 15.75		$15.372^2 = 4962.266$
15 × 32.735 = 491.025		$16.613^2 = 4139.877$
38.3 × 18.045 = 691.124		$1.923^2 = 141.631 + 6710$
74.30	1197.899	9243.773 + 6710

y = 16.122

$\Sigma I = 15953.774$

$\Delta_{TL} = \frac{18496}{15953} = 1.159$ ok

1.46

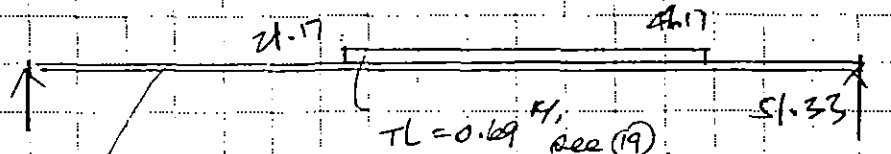
PRODUCT 205-1 NEBS Inc., Groton, Mass. 01471 To Order PHONE TOLL FREE 1-800-225-6380

THE OFFICE OF
IRWIN G. CANTOR, P.C.
Consulting Engineers
"Member Can. Seinuk Group"
219 EAST 42ND STREET
NEW YORK, N.Y. 10017
PHONE (212) 949-9150

JOB 1011C
SHEET NO. 47-? OF
CALCULATED BY DATE
CHECKED BY DATE
SCALE

(17) + PL

(20) · W24×55 <30> [14]



TL = 0.69 K/, see (19)
DC = 0
LLT = 1.104

TL 0.717
DL 0.276
LLT 0.994

TL = 27.34
DL = 7.1
LLT = 40

TL = 24
DL = 7.1
LLT = 34.39

TL = 5955
DL = 1487
LL = 4468

$\beta_w = 0.055$

$0.05 \times 4.415 = .221$
0.276
$0.025 \times 4.415 = .110$
$0.386 \times 1.2 = .464$
$.075 \times 4.445 = .331 \times 1.6 = .530$
.717 0.994

b = 58.1N
N = 30 EQ = 754
$Y_1 = 3.45$ EQ = 329
a = 1.907
$Y_2 = 4.547$
$\phi M = 758$ 'K

$+M_u^{27.58} = 547$ 'K $< \phi M = 758$

OK

PRODUCT 225-1 (WEBB) Inc., Groton, Mass 01471 To Order PHONE TOLL FREE 1-800-225-6380

THE OFFICE OF
IRWIN G. CANTOR, P.C.
Consult[illegible] Engineers
"Member Ca[illegible] Seinuk Group"
219 EAST 42ND STREET
NEW YORK, N.Y. 10017
PHONE (212) 949-9150

JOB [illegible]
SHEET NO. 4[illegible]8 OF
CALCULATED BY DATE
CHECKED BY DATE
SCALE

47 th

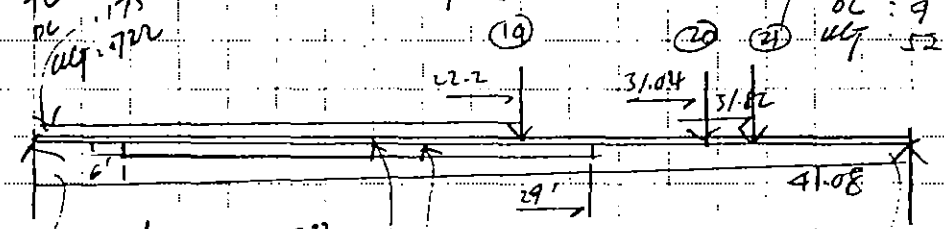
(22) W33 x 201

TL = 76 24 k
DL = 21 7
WT = 118 k 34

Same as prev.

TL .515 k/'
DL .175
WT .722

TL .36
DL .9
WT 52



4.65' x 0.05 = .233
.025 = .116
.075 = .349

.075 x 6 = .45 k/' TL
0 DL
WT 0.72

0.05 = .131
2.61 x .025 = .065
0.075 = .196

TL = .698
DL = .233
WT = .977 k/'

TL = .201
DL = .201
WT = 0.24

TL = .392
DL = .131
WT = .549 k/'

TL = 78
DL = 24
WT = 118

TL = 111 k
DL = 32
WT = 160

TL = 12789 / 11500 = 1.112
DL = 3750
LL = 9039

$+M_u^{n.L} = 2056$ 'k

$\phi M = 2900$ 'k

OK

PRODUCT 205-1 NEBS Inc., Groton, Mass 01471 To Order PHONE TOLL FREE 1-800-225-6380

6/1

PA 2127
1-85

TENANT ALTERATION REVIEW REQUEST

✓	CHECK APPLICABLE ROUTING	ROOM NO.
	Engineering (T.C.R.U.)	43NE
	Risk Management – JSTC – Zip 43	6 FL
	Operations Standards – JSTC – Zip 75	5 FL
	Terminal Properties Div.	56S
	Control Desk	
	Facility Manager –	
	Port Dept. – Planning Div.	64[illegible]
	Aviation Technical Services Div.	65S
	Air Terminal Properties Div.	
	JFK – Business Administration – Zip 6	
	NIA – Business Administration – Zip 19	
	Marine Development & Rentals Div.	71E
	Inspection & Safety	
	Resident Engineer	

Description of Work: P.A. PKG. # 21

BASE BUILDING MODIFICATIONS

DWGS DATED 5/26/89

FACILITY 7 WTC

APPLICANT'S NAME SALOMON BRO

APPLICATION NO. W 7004

DRAWING NO(S). SEE ATTACH BOOKLET

DATE 5 ,31 ,198

☑ You are requested to review the attached application and forward your comments to:

☐ Attached are revised drawings. Please review only those items on which exception was previously taken and send your comments to:

821	745	L. SANCHEZ	8566
Org. Unit	Room No.	Contact	Ext.

No later than JUNE 19, 1989

PROJ. ADMIN.
Title

If no reply is received by above date, your concurrence will be assumed unless arrangements have been made for additional time for review.

FOR USE OF REVIEWING DEPARTMENT

COMMENTS: (Use reverse side if necessary) Indicate next to each comment whether it is a condition or recommendation.

THE PORT AUTHORITY OF N.Y. & N.J.
TENANT CONSTRUCTION REVIEW UNIT
RECEIVED
JUN 0 1 1989
W-7004 (13)
ALTERATION APPLICATION

Office Copy

L. SANCHEZ

(Please check applicable box)

☐ Approved ☐ Approved with Conditions and Recommendations Noted Above ☐ Disapproved with Requirements for Approval Noted Above ☐ Disapproved for Reasons Noted Above

Signature	Title	Date
		/ /

PA 30
9-75

THE PORT AUTHORITY OF NY & NJ

To PAUL COOPER Room No

From: Luciano Sanchez / Room 62E / Ext. 8566

Date 6/1/89

RE: SALOMON TWTC

PAUL:

THIS IS THE PACKAGE THAT WE DISCUSSED AT THE MEETING AND THAT REQUIRES IMMEDIATE ATTENTION ——

CAN SUBBOSTED THAT I TOUCH BASE W/ YOU AND DO YOUR BEST TO HELP SALOMON ——

WELL TALK

LS

Member of the New Yo ck Exchange, Inc.

One New York Plaza
New York, N.Y. 10004 (212) 747-7000

For Paul Cooper

#19

PKG

Salomon Brothers Inc

May 25, 1989

Mr. Robert Linn
Deputy Director of Physical Facilities
World Trade and Economic Development
Port Authority of New York and New Jersey
One World Trade Center
New York, NY 10048

Re: 7 WTC - SBI Filing Package Dated 5/22/89 -
Request for Expedited Approval of Five Drawings

Dear Bob:

This letter confirms my telephone call to your office today reference subject.

On 5/22/89 we filed with the Port Authority a package of revisions to our Base-Building Modification plans, including SBI's 5th floor electrical plant. As we discussed previously, Con Edison will not review for construction details. On 5/11/89 we discussed with your engineering staff the necessary revisions to comply with the NYC Building Code and obtain P.A. approval.

Since our 5th floor electrical plant is on the critical path of the construction schedule, we respectfully request your expedited approval of the following five (5) drawings: A-5, A-200A (Details 1 through 7), HVAC-4, HVAC-5 and P-55.

Typo → P-5

Lou Sanchez has arranged for a 5/26/89 meeting between your engineering staff and our consultants to review the newly filed plans. If any questions arise after the meeting, please let me know -- we are prepared to respond immediately.

Your assistance in this matter is greatly appreciated.

Sincerely,

Manuel Fernandez

Manuel Fernandez
Vice President

JUN 05 1989

cc: L. Sanchez, W. Mathison, D. Sullivan, J. Beech, D. Daniels, A. Tamboli, R. Pavesi, S. Orr, B. Reinholtz, A. DeMeo, M. Simone, R. White/File, J. Glass, E. Schneider

Member of the New Yo ck Exchange, Inc.

One New York Plaza
New York, N.Y. 10004 (212) 747-7000

Paul - Re: 5 Dwgs. that Salomon wanted expedited P-55 is a typo error. P-5 is the correct Drawing. It is in our PKG. #19

Ed McInerney

Salomon Brothers Inc

May 25, 1989

Mr. Robert Linn
Deputy Director of Physical Facilities
World Trade and Economic Development
Port Authority of New York and New Jersey
One World Trade Center
New York, NY 10048

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Manuel Fernandez

Manuel Fernandez
Vice President

cc: L. Sanchez, W. Mathison, D. Sullivan, J. Beech, D. Daniels, A. Tamboli, R. Pavesi, S. Orr, B. Reinholtz, A. DeMeo, M. Simone, R. White/File, J. Glass, E. Schneider

851

PA 2127
1-85

TENANT ALTERATION REVIEW REQUEST

✓	CHECK APPLICABLE ROUTING	ROOM NO.
	Engineering (T.C.R.U.) 5/	~~ONE~~
	Risk Management – JSTC – Zip 43	6 FL
	Operations Standards – JSTC – Zip 75	5 FL
	Terminal Properties Div.	56S
	Control Desk	
	Facility Manager –	
	Port Dept. – Planning Div.	64S
	Aviation Technical Services Div.	65S
	Air Terminal Properties Div.	
	JFK – Business Administration – Zip 6	
	NIA – Business Administration – Zip 19	
	Marine Development & Rentals Div.	71E
	Inspection & Safety	
	Resident Engineer	
	A. VACCARO } 3861	
	P. CAVANAGH }	
	R. LINN 63W	
	E. McNIERNEY 745	

Description of Work: WTC PLANNING PKG #19

BASE BUILDING MODIFICATIONS (ARCHITECTURAL, STRUCTURAL, HVAC, PLUMBING, ELECTRICAL & SPECIFICATIONS

FACILITY 7 WTC
APPLICANT'S NAME SALOMON BRO
APPLICATION NO. W-7004
DRAWING NO(S). SEE ATTACHE BOOKLIST
DATE 5 26 89

☑ You are requested to review the attached application and forward your comments to:

☐ Attached are revised drawings. Please review only those items on which exception was previously taken and send your comments to:

821	745	L. SANCHEZ	8566
Org. Unit	Room No.	Contact	Ext.

No later than JUNE 26, 1989 PROJ. ADMIN. (Title)

If no reply is received by above date, your concurrence will be assumed unless arrangements have been made for additional time for review.

FOR USE OF REVIEWING DEPARTMENT

COMMENTS: (Use reverse side if necessary) Indicate next to each comment whether it is a condition or recommendation.

INCLUDED ALSO : • SPEC CHANGES
• STRUCTURAL CALCULATIONS

THE PORT AUTHORITY OF N.Y. & N.J.
TENANT CONSTRUCTION REVIEW UNIT
RECEIVED
MAY 30 1989
W-7004 (12)
ALTERATION APPLICATION

Office Copy

L. SANCHEZ
E. McNierney for

(Please check applicable box)

☐ Approved ☐ Approved with Conditions and Recommendations Noted Above ☐ Disapproved with Requirements for Approval Noted Above ☐ Disapproved for Reasons Noted Above

Signature	Title	Date
		/ /

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

M E M O R A N D U M

To: Mr. R. Linn, Deputy Director for Physical Facilities, WT&ED
From: Ennala Ramabhushanam
Date: May 23, 1989
Subject: WTC - ALTERATION APPLICATION #W-7004 - SALOMON BROTHERS - 7 WTC - BASE BUILDING MODIFICATIONS

Reference: Tenant Alteration Review Request, dated 5/9/89

Copy To: L. Sanchez A. Vaccaro Job Folder
Chrono Folder

A review of the material submitted with the referenced request for the subject application has been made.

The previous recommendation of approval to proceed with construction remains unchanged subject to the submission of the items listed below being revised in accordance with the ten (10) requirements listed on the attached rider.

Drawings: See attachment for the list of mechanical drawings recommended for approval, to supplement the list of D,A,S,E,C and P drawings issued previously.

Code Analyses:

Specifications:

Ennala Ramabhushanam

Ennala Ramabhushanam, P.E.
Manager
Quality Assurance Division

JPV/dm
att.

RIDER

ALTERATION APPLICATION #W-7004

ARCHITECTURAL

1. Response to comment #3 of Q.A.D. memo dated 4/24/89 is noted. When the Sprayed-on Fireproofing system has been selected, the thickness and density to attain the required hourly rating for each structural element shall be tabulated on Dwg. #A-48. (Repeat comment)

ELECTRICAL

2. Dwgs. #E-R1, E-R2, Specifications. Submit short-circuit calculations, and also submit tabulation of short-circuit ratings for buses, fuses, switches, and circuit breakers, with corresponding values of short-circuit current. N.Y.C. Electrical Code Sections B30-44.0, B30-44.1, B30-59.0; NEC Sections 110-9, 110-10. (Repeat comment)

3. Re-specifications, p. 16002, part B-2, and tenant's responses to comment numbers 6 and 7 of Q.A.D. memo dated 4/24/89. Substitute a non-PVC wire insulation for type THWN. (Repeat comment)

4. Code Analysis, Suspended Ceilings, Section 5 - Installation. Re: Code reference RS 5-16, Section 5.3.2, maximum Fixture Weights. Add a requirement that fluorescent fixture installations be made in compliance with N.Y.C. Electrical Code Sections B30-122.0-q for recessed type, and -r for surface or pendant type. Note that this necessitates supporting recessed fluorescent fixtures from the channel iron (purlin) or the building structure if the fixture weight exceeds 40 pounds, and similarly for the supporting surface or pendant fluorescent fixtures regardless of fixture weight. (Repeat comment)

5. Code Analysis, Electrical, former Code Article 33. Delete "no" from the subject description so that it will read, "Circuits and Equipment Operating At More Than 600 Volts Between Conductors." (Modified repeat comment)

6. Code Analysis, Electrical, Bulletin No. 126. Correct the reference to read, "Bulletin No. 126-Revised 1983." (Repeat comment)

7. Code Analysis, Fire Alarm, Code Reference 1704.6(a). Delete statement on 5'-3" mounting height, which contradicts the 4' height requirement properly stated on the next line. (Modified repeat comment)

MECHANICAL

8. Specifications Section 15521A.2.15.A.6. Since 5th and 6th floor outside air intake louvers on the west side of the building are in proximity of the Con Edison Substation venting lourvers, their deactivation for the purpose of creating a negative pressure during smoke condition in the emergency generation space shall be sequenced in such a manner so as to minimize the possibility of the substation fire and its combustion products to be drawn into the building. See N.Y.C. Building Code RS 13-1, Section 2-3.4.3 (Modified repeat comment)

   During discussions at the meeting of 5/11/89, Port Authority personnel suggested that in the sequencing of the forced outside air intake fans shutdown during smoke condition in the emergency generator space, priority be given to the louvers directly above and/or adjacent to the potential source of smoke.

9. Specifications, Section 15521A.2.15.J.g.a. Please clarify a discrepancy between the specifications and contract drawings which do not show any smoke exhaust fan in west MER. See Code Section C26-110.2.

10. Specifications, Section 15521A.2.15.M.4. Please verify that the A/C unit discharge temperature of 55°F will maintain the required space temperature of 50°F in winter in the penthouse MER in conformance with the Code Section C26-1204.1, Table 12-1.

ATTACHMENT

ALTERATION APPLICATION #V-7004

HVAC-1 through 6	revised	5/5/89
HVAC-31, 43, 46, 47, & 49	revised	5/5/89
HVAC-51 through 51.1	revised	5/5/89

052289

PA 2127
1-85

TENANT ALTERATION REVIEW REQUEST

✓	CHECK APPLICABLE ROUTING	ROOM NO.
	Engineering (T.C.R.U.) 51	[illegible]
	Risk Management – JSTC – Zip 43	6 FL
	Operations Standards – JSTC – Zip 75	5 FL
	Terminal Properties Div.	56S
	Control Desk	
	Facility Manager –	
	Port Dept. – Planning Div.	64S
	Aviation Technical Services Div.	65S
	Air Terminal Properties Div.	
	JFK – Business Administration – Zip 6	
	NIA – Business Administration – Zip 19	
	Marine Development & Rentals Div.	71E
	Inspection & Safety	
	Resident Engineer	
	R. LINN	63W
	A. VACCARO	3861
	P. CAVANAGH	"
	E. McNIERNEY	74S

Description of Work: P.A. PKG. #18

RESPONSES TO QAD (TCRU) COMMENTS DATED 4/24/89. + Code Analysis

FACILITY 7 WT

APPLICANT'S NAME SALOMON B

APPLICATION NO. W 7004

DRAWING NO(S). PER ATTAC TRANSMITTA

DATE 5 9 8

☑ You are requested to review the attached application and forward your comments to:

☐ Attached are revised drawings. Please review only those items on which exception was previously take and send your comments to:

821	74 S	L. SANCHEZ	8566
Org. Unit	Room No.	Contact	Ext.

No later than _____ PROJ. ADMIN Title

If no reply is received by above date, your concurrence will be assumed unless arrangements have been made for additional time for review.

FOR USE OF REVIEWING DEPARTMENT

COMMENTS: (Use reverse side if necessary) Indicate next to each comment whether it is a condition or recommendation.

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(Please check applicable box)

☐ Approved ☐ Approved with Conditions and Recommendations Noted Above ☐ Disapproved with Requirements for Approval Noted Above ☐ Disapproved for Reasons Noted Above

Signature	Title	Date
		/ /

TRANSMITTAL

SKIDMORE, OWINGS & MERRILL

220 EAST 42ND STREET · NEW YORK, NEW YORK 10017

TO:	RE:
The Port Authority of N.Y. & N.J One World Trade Center New York, N.Y. 10048 Attn: Lou Sanchez Rec# 056745	Salomon Brothers Inc 7 WORLD TRADE CENTER NEW YORK, NEW YORK 10048

WE ARE SENDING HEREWITH THE FOLLOWING:

[ ] DRAWINGS [ ] SPECIFICATIONS [ ] SHOP DRAWINGS [ ] SAMPLES [ ]

QUANTITY & TYPE	DESCRIPTION	DATE
6 Sets Black + White	A-48 A-201	
	A-218	
	HVAC (all drawings)	
1 Photocopy	Revised Code Analysis Typed Responses	

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W-7004 (11)
ALTERATION APPLICATION

* Above information is being issued as Response to the P.A. comments dated 4-24-89.

PKG #18
REC'D
5/8/89

BY:	DATE: 5 May 1989
[ ] RECEIPT AND RETURN TO SOM REQUESTED	X

COPIES TO:

M. Fernandez
D. Sullivan
C.F. 6234-135

THE P[illegible]UTHORITY OF N.Y. & N.J.
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ARCHITECTURAL RESPONSES TO P.A. COMMENTS — Dated 4.24.89

COMMENT

1. Dwg. #A-200, Toilet Plan and Details. Verify that depth of toilet stalls for handicapped use complies with ANSI A117.1-1986. (Repeat comment)

RESPONSE ✓

The toilet drawings (A-201 and A-218) have been revised to comply with ANSI A117.1 1986. The toilet plans on drawing A-200 has been superseded by drawing A-218.

COMMENT

2. Regarding use of non-fire-retardant wood, please clarify the specific locations which qualify for the use of such wood as per limitations enumerated in the NYC Building Code Section C26-504.8.

RESPONSE ✓

We do not intend to use non-fire-retardant treated wood on this project.

COMMENT

3. Specification #07275 - Sprayed-on Fireproofing. On the drawings, indicate the fire protection rating in hours required for the new structural members based on Table 3-4 of the Building Code.

   When the sprayed-on fireproffing has been selected, indicate the thickness and density required to attain the hourly rating for each structural element. (Repeat comment)

repeat

RESPONSE

Drawings to indicate the fire protection rating (see drawing A-48). When fire proofing contractor has been selected, his information will be forwarded for your review.

ELECTRICAL RESPONSES TO P.A. COMMENTS

COMMENT

4. Dwgs. #E-R1, E-R2. Submit short-circuit calculations and tabulation of short-circuit ratings for buses, fuses, switches, and circuit breakers, with corresponding values of short-circuit current. N.Y.C. Electrical Code sections 27-3047 (B30-44.0), 27-3048 (B30-44.1), 27-3067 (B30-59.0); NEC sections 110-9, 110-10. (Repeat comment)

RESPONSE

Maximum short-circuit values have been noted on Dwgs. # E-R1 and E-R2. Calculations will be submitted when actual values are available from shop drawing submittals of generators and transformers.

COMMENT

5. Code Analysis, re: response to comment numbers 8 through 21 of Quality Assurance Division memo dated 12/5/88. Submit revisions conforming with the response. (Repeat comment)

RESPONSE

See revised code analysis by SOM.

COMMENT

6. Specifications, p. 16002, part B-2. Delete THWN wire insulation, and substitute a non-PVC type. (Repeat comment)

RESPONSE

Type XHHW will be used for risers as shown on Dwg. #E-R1. THWN will be used for branch circuit wiring. This matches existing building conditions.

COMMENT

7. Code Analysis, re: response to comment number 22 of Quality Assurance Division memo dated 12/5/88. PVC wiring is prohibited indoors, even if run in conduit. (Repeat comment)

RESPONSE

Type THWN wiring will be used for branch circuit wiring and type XHHW for risers. This matches existing building conditions.

MECHANICAL RESPONSES TO PA COMMENTS

COMMENT

8. Dwg. #HVAC-1. For the new underground fuel oil tank and piping indicated on the drawing, provide design details as required to demonstrate conformance with all applicable provisions of Subchapter 14, Article 17 of the N.Y.C. Building Code, as well as 6NYCRR part 614: Standards for New and Substantially Modified Petroleum Storage Facilities. In contract documents please specifically address: secondary containment to collect and contain fuel leaks, leak monitoring system, anticorrosive protection of the tank and all associated underground piping, as well as pressure testing and inspection procedures. Please note that design details shown on Dwgs. #S-33 and HVAC-54 are contradictory and neither of them meets code requirements for the secondary containment of the potential fuel leak. (Modified repeat comment)

   Consultant's reply has been noted but could not be verified in materials submitted for review.

RESPONSE

Refer to Drawing HVAC-1: Fuel oil tank shall be double-wall fiberglass tank with interstitial leak detection between the tank walls. All buried piping will have cathodic protection.

COMMENT

9. Dwgs. #HVAC-2, HVAC-3 and HVAC-4. Provide and show on plans a separate dedicated shaft for the fuel oil risers in conformance with N.Y.C. Building Code, Section C26-1416.3.(f)5 (Repeat Comment)

   The above drawings have not been resubmitted for review, therefore, consultant's reply could not be verified.

RESPONSE

Refer to Drawings HVAC-2, 3 & 4: Fuel oil risers will be installed in either a 2-hour rated pipe enclosure or a dedicated shaft.

COMMENT

10. Dwgs. #HVAC-5 and #HVAC-6. Since outside air intakes on the west side of the floors shown on these drawings are in

proximity of the existing Con Edison Substation venting louvers they shall be inactivated in the event of a substation fire in order to prevent the fire and its combustion products to be drawn into the building. See N.Y.C. Building Code RS 13-1, Sections 2-3.4.3. and 3-3.6. (Modified repeat comment).

As an alternate to shutting down of these forced draft outside air intake louvers, discussions between Port Authority personnel and the tenant's consultants at the meeting of 3/21/89 suggested an arrangement of the combustion air flow coupled with the sequencing of the forced outside air intake fans to safeguard the maintenance of a pressure differential sufficient to protect against the spread of smoke from the emergency generator floor to the remainder of the building.

RESPONSE

Refer to the attached Sequence of Operation for "Generator System". As stated, the supply fans will be controlled so that 25 percent of the required fans will deenergize, and their dampers will close, upon a fire alarm (smoke condition) on the fifth floor. This will result in the fifth floor operating under a negative pressure relative to the remainder of the building.

COMMENT

11. Dwgs. #HVAC-46 and #HVAC-47. Where 26 x 8 and 16 x 8 toilet exhaust ducts penetrate shaft walls, provide fire dampers and access doors in conformance with RS 13-1, Section 3-3.2.2. Also, on Dwg. #HVAC-47, provide fire damper and access door in toilet and elevator machine room exhaust ducts where they exit a duct shaft. (Repeat comment)

RESPONSE

Refer to Drawing HVAC-47: The 26 x 8 (HVAC-46) and 16 x 8 toilet exhaust ducts do not penetrate shaft walls. However, the 16 x 8 duct does penetrate the 47th floor slab and is therefore shown with a fire damper and access door. The toilet and elevator room exhaust ducts are shown with fire dampers and access doors at the shaft wall.

COMMENT

12. Dwgs. #HVAC-48 and #HVAC-49. For all new air handling units, provide and show on plans the physical locations of duct mounted smoke detectors in conformance with RS 13-1, Section 4-3. In addition, for all air handling units with

capacities greater than 15,000 CFM, provide the protection against combustion of air filter systems in conformance with requirements of RS 13-1, Section 2-4.1.2. (Modified repeat comment).

Although there are several large air handling units shown on these drawings, consultant's response addresses only one of them. (O.A. unit).

RESPONSE

Refer to Drawing HVAC-49: AC-1 and AC-2 are shown with smoke detectors and dampers downstream of the filters. All other AHUs and kitchen exhaust fans are future tenant installations.

COMMENT

13. Dwg. #HVAC-53.1. With regard to the modification of the building smoke control system, please coordinate the system's diagrams on this drawing with the plans and sections shown on other mechanical drawings, and also please clarify the submitted Smoke Control Sequence of Operations so it correlates with the coordinated drawings and symbols used in them to reflect the design intent in a fully comprehensive manner. Please note that on plans the minimum outdoor air shaft is also indicated as a smoke purge shaft during a fire alarm condition in the building and, therefore, it is not clear from the submitted sequence of operation whether the design calls for the supply of the make-up air to, or the exhaust of the smoke contaminated air from the central core MER through the minimum outdoor air opening.

RESPONSE

Refer to Drawing HVAC-53.1 and the attached sequence of operation.

COMMENT

14. Dwg. #HVAC-54.1, Typical Fire Damper Detail. With regard to fire damper sleeve, please note that WTC design criteria reflected in standard details given to all tenants call for the sleeve to be of the same gauge as the ductwork to which it fastens, with a minimum of 16 gauge for high velocity and ductwork and all other rectangular ductwork up to 36-inches wide. For ductwork above 36-inches wide, the sleeve shall be 14 gauge.

RESPONSE

The fire damper details shown on Drawing HVAC-54.1 conform with the New York City Building Code.

COMMENT

15. For all air handling systems, provide detailed sequences of operations, illustrated by air flow diagrams, if necessary, to demonstrate conformance with all provisions of the Code Section C26-1300, RS 13-1, Sections 2-4.1.2, 4-3, and 4-3.1 in connection with the control of smoke spread through the air handling systems. Also please describe all required interfacings between air handling systems and the existing Class E fire alarm and communication system in the building. (Repeat comment)

RESPONSE

Refer to the attached sequence of operations.

COMMENT

Consultant's responses to the following comments have been noted but they could not be verified in the materials submitted for review. Therefore, these comments are restated.

16. Design Guidelines VIII, Minimum Standards for Construction in New York City, Engineering Requirements - HVAC:

    a) Add the requirements for Smoke Control in conformance with Code Section C26-1300.8.

    b) For "General Requirements and Construction Requirements of Fuel Oil Storage Tanks," add requirements of the New York State:

       Department of Environmental Conservation - GNYCRR: Part 612, Part 613 and Part 614.

    c) Revise NFPA 90-1, 1967 to NFPA 90-A, 1981.

    d) Revise NFPA 96, 1964 to NFPA 96, 1984.

    e) Revise ANSI-B9.1, 1971 to ANSI-B9.1, 1978.

RESPONSE

The design guidelines have been superseded by the specification issued January 20, 1988 and the addendums and additional specification sections issued March 1, 1989, April 6, 1989 and May 1, 1989.

COMMENT

17. Specifications, Section 15502. 2.01.B.12.a. Specified thickness of diesel engine round exhaust pipe of 10 USSG is les than the 3/16 inch required by the Code Section C26-1501.14.(a).(2). Please revise.

RESPONSE

Specification for Diesel Engine Exhaust Pipe is Section 15501-6, Part 2.01.C.1.m., "Diesel Engine Exhaust System". Section 15502 is "Ductwork" and references the radiator discharge.

COMMENT

18. Specifications, Section 15503.1.05.D. Provide specifications for thermal insulation of the round diesel engine exhaust pipe. Also, provide specifications for thermal insulations of kitchen exhaust ductwork and fans. See RS-13-3, Section 3-2.10.

RESPONSE

The section for diesel engine exhaust pipe insulation was inadvertently omitted form the specification. The attached insulation addendum will be issued to the Contractors. Kitchen exhaust ductwork and fan insulation is future tenant work and the associated specifications will be issued when that work is submitted for approval.

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2.14 IDENTIFICATION

A. All thermostats (except room type), transmitters, controllers, valves, dampers and gauges to have a nameplate of black and white lamicoid plastic or a material of similar durability mounted on or adjacent to the device. Where there is more than one system in any one space, each nameplate to bear the system number.

B. Provide two (2) sets of apparatus bulletins for all products furnished. Bulletins shall be supplied in three ring binders separated by appropriate dividers and one set of as-built sepias

2.15 SEQUENCE OF OPERATION

A. Generator System

1. The generator room supply fans shall each be started in the automatic mode from the BMS or manually at the HOA switch of their motor starter.

2. When the generators are off the supply fans shall be deenergized and their associated N.O. outside air intake dampers shall be closed.

3. Upon activation of any of the four generators situated in the northeast quadrant of the Fifth Floor, all outside air dampers in the Fifth Floor East plenum wall shall immediately open and the required number of outside air supply fans in the Fifth Floor east plenum wall shall be energized. Supply fans shall energize only upon proof that their damper has opened. The BMS shall calculate the required number of fans according to the following:

$$\text{Number of Supply Fans} = \frac{(\text{No. of Active Generators}) \times (68{,}700 \text{ cfm/Generator})}{(28{,}000 \text{ cfm/Supply Fan})} \quad \text{(Rounded Up)}$$

The BMS shall sequence activation of the fans such that the fan with the fewest operating hours energizes first and the fan with the most operating hours energizes last. Should a fan fail to energize, the BMS shall signal an alarm and activate the next fan. The failed fan shall be given an OFF command to ensure its damper is closed. Upon activation of all required fans, dampers of non-active fans shall also close.

4. Upon activation of either of the two generators situated in the northwest quadrant of the Fifth Floor, the outside air dampers and the outside air supply fans in the Fifth Floor west plenum wall shall be sequenced as in 3 above.

5. Upon activation of any of the three generators situated in the southwest quadrant of the Fifth Floor, all outside air dampers in the Sixth Floor plenum wall shall immediately open and the required number of banks of four fans shall energize. Supply fans shall energize only upon proof that their damper has opened. Should a fan fail to energize its associated damper shall close and an alarm shall signal at the central console. Upon activation of the required fans, dampers of non-active fans shall also close. The BMS, via software, shall interlock one bank of four fans in the Sixth Floor west plenum wall per generator. Should any two fans of the bank of four fans fail to energize, the BMS shall signal the associated generator to deenergize. If another bank of fans is available (i.e., at least one generator is off) a non-active bank of fans shall be energized and if full fan operation is verified, the generator may stay energized.

6. Upon a smoke alarm on the Fifth Floor, as signalled by the Fire Alarm System, the BMS shall deenergize 25 percent of the active supply fans so that the floor operates under a negative pressure. The fans shall deenergize in the same order as they started. In the southwest quadrant any one bank of four fans shall not have more than one (1) fan shut down.

7. Whenever the space temperature within the northwest, northeast, or southwest quadrants exceeds 100°F (adjustable), and the generators within that quadrant are off, the BMS shall energize four supply air fans in that quadrant through their damper end switches, and open the associated N.C. relief dampers in the discharge plenum wall. Upon a drop in space temperature to 90°F (adjustable) the supply air fans shall deenergize and the outside air intake and relief dampers shall close. This sequence shall occur individually for each quadrant.

B. Fuel Oil System

1. The duplex fuel oil pumps shall be controlled automatically from the BMS or manually at the HOA switch of the motor starter.

2. The fuel oil pumps shall be energized upon activation of any generator. The fuel oil pumps shall deenergize when all generators are deactivated.

3. A preliminary low level alarm in the fuel oil storage tank shall signal an alarm at the BMS. A final low level alarm shall prevent the pumps from operating. The final low level alarm shall be overridden only upon manual command from an authorized operator and proof that the secondary fuel oil fill valves at the loading docking are open.

C. Technology Floors (35 and 44)

1. The Computer Room air conditioning units shall be started remotely from the BMS or manually at the air conditioning unit control panel. Upon activation of an air conditioning unit its associated N.O. discharge damper shall open. Upon deactivation of an air conditioning unit the damper shall close. A/C units shall not energize without proof that discharge damper is open.

2. The BMS shall monitor the status of all air conditioning units. Upon an alarm signal from an air conditioning unit, the BMS shall deactivate that unit, signal an alarm at the Central Console, and energize the standby unit within the same A/C group. A group is defined as a duct header, individual room, etc.

3. The designated standby unit within each group shall automatically be rotated on a weekly basis to ensure that the operating hours of each unit do not differ by more than 168 hours.

4. Upon an alarm signal from the liquid detection system, the BMS shall isolate the under floor piping loop by closing the automatic valves adjacent to the riser. The valves shall reopen upon manual command by authorized personnel even if the alarm is not cleared.

5. Electric Heating Coil (EHC 35-1 and 44-1)

   a. A stand alone DDC controller will monitor the discharge temperature of the heating coil and modulate the SCR controller to maintain a discharge temperature setpoint of 60°F (adjustable). This discharge temperature will be monitored and the setpoint adjusted at the central monitoring console.

   b. Provide a positive flow control device which will prevent the electric coil from operating if flow does not exist and sound an alarm at the central monitoring console.

6. A graphic display shall indicate active, alarmed and standby units, space temperature and humidity, and ventilation air discharge temperature.

D. UPS and Battery Rooms

1. The battery and halon exhaust fans shall be controlled in the automatic mode from the BMS and manually through the HOA switch of their respective motor starters.

2. Upon signal to activate either fan, the fan's exhaust damper shall open and fan shall energize upon proof that damper is open. Transfer air dampers shall also open. Upon deenergizing fan, its exhaust damper shall close and transfer air dampers shall close.

3. The battery exhaust fan shall remain energized unless manually commanded to stop by authorized personnel. Upon deactivation of battery exhaust fan, halon exhaust fan shall automatically energize. Authorized operator may command both fans inactive.

4. Upon fire alarm signal from Battery or UPS Room, the battery and halon exhaust fans shall deenergize and all dampers (exhaust and transfer) shall close. Fans shall be kept deenergized for adjustable "Halon Soak Time". Halon and battery exhaust fans shall be activated to purge halon through a fireman's keyswitch.

5. Upon return to normal operation (fire alarm is cleared) battery exhaust fan shall energize and halon exhaust fan shall remain deenergized.

E. Trading Floor AC Units (AHU 41-1, -2, -3, -4, -5, -6 and AHU 43-1, -2, -3, -4, -5, -6

1. The air handling units shall be started automatically on a weekly time schedule from the BMS or manually through the Hand/Off/Auto (HOA) switch at the unit starter.

2. When the unit is off, the N.C. chilled water valve shall be closed and the inlet vane dampers shall be at minimum position.

3. It is the intent of this specification to operate all AHUs serving a trading floor in unison for both on/off operation and volumetric control. However, the BMS shall be able to deenergize individual AHUs, both automatically and manually.

4. When the supply fan is commanded to start (manually or via the BMS), the unit discharge damper will be gradually opened as the fan comes up to speed. Provide a means to vary the opening speed of the damper at the panel to allow synchronization of fan speed with the duct header. When the discharge damper has reached its full open position, the inlet vane will be allowed to increase from the minimum position via a digital flow controller.

5. Each group of units (6 expandable to 7) serving a particular trading floor will all have their inlet vanes controlled by a single digital flow controller located on that floor and dedicated to flow control functions. At any point in time, an authorized operator at the central monitoring station or local DDC panel shall be able to manually position all inlet vanes on a particular floor, in unison, to provide the correct air flow for the system load. Provide a scale in graphics and diagrammatically at the local panel, indicating the relationship between the control signal, inlet vane position (% open) and resulting air flow quantity (cfm). Provide a pneumatic override switch which will allow manual control of all the inlet

vanes, in unison, from the flow control panel during emergency operation (loss of DDC control).

6. A sensor located on the trading floor shall sense humidity and transmit it back to the DDC flow controller. If the space humidity rises above 50% RH (adjustable) the flow controller shall signal an alarm at the central monitoring console and incrementally decrease the total flow setpoint by 10% (adjustable) from the existing setpoint. Subsequent automatic changes in air flow will not occur until a 10 minute (adjustable) time delay has elapsed. If the supply temperature is less than or equal to the space calculated dewpoint temperature plus 1.5°F, the flow controller will signal an alarm at the central monitoring console and incrementally increase the total flow setting by 10% (adjustable) from the existing setpoint. Subsequent changes in air flow shall not occur automatically until a ten (10) minute (adjustable) time delay has elapsed. Any time any change is performed on the air flow setpoint, either automatically or manually, the system shall perform a historical log of all system parameters for future analysis. This information shall be stored on hard disk (for 1 week) and shall be printed. These parameters shall include, but not be limited to: time, date, supply air temperature, return air temperature, space temperature(s), space relative humidity, the name of the operator on duty, the name of the operator or event which initiated the change, the previous airflow setpoint and the new airflow setpoint.

7. When the AHUs airflow setpoint reduces to 30 percent (adjustable) the BMS shall deenergize one (1) AHU in the East MER and the airflow setpoint of the remaining five (5) AHUs shall be set up to match the original total airflow. If the setpoint again drops to 30 percent, the BMS shall deenergize one (1) AHU in the northwest MER and adjust the airflow setpoint of the remaining four (4) units to match the previous total airflow. Should the airflow setpoint again drop to 30 percent, this same sequence shall again occur in the East MER. There shall never be less than three (3) AHUs operating - one (1) in each MER. Whenever an AHU is commanded off, either automatically or manually, the system shall perform a historical log for future analysis. This information shall be stored on hard disk (for 1 week) and shall be printed. This information shall include: time, date, previous status of all units, new status of all units, airflow setpoint, space temperature and humidity, supply temperatures, return temperatures, name of operator on duty, and name of operator or event which initiated change.

8. All temperature control for each unit will be performed by individual standalone controllers for total system reliability. Each controller will be completely independent of any other control panel, and will continue to operate in the event of a loss of communication with a supervisory controller or the central processing unit. Each controller will have an auxiliary controller with

stand alone capability mounted next to it. A barrel switch, mounted on the face of the panel, will allow the operator to manually switch from the main temperature controller to the auxiliary temperature controller. In the auxiliary position, the system will function in a completely stand alone mode and an advisory message will alert the console of trouble. It is the intent of this Specification to provide complete redundancy to these controls in the event of a failure of the primary controller.

9. Communication architecture to the trading floor units will be such that failure of any one communications truck from a supervisory controller to a standalone controller, or failure of a supervisory controller, shall not cause the loss of communications to more than three trading floor units on any one floor. Describe method of providing this requirement along with bid.

10. The DDC controller will modulate the CHW cooling coil valve to maintain a discharge temperature reset by the space air temperature.

11. As the space temperature drops below setpoint, the DDC controller will gradually reset the discharge air temperature setpoint up along an adjustable reset ramp.

12. As the space temperature rises above setpoint, the DDC controller will gradually reset the discharge air temperature setpoint downward along an adjustable reset ramp to a low limit of 1.5°F above space dewpoint temperature. In case of failure of the digital volume controller the temperature controller shall not allow the unit supply temperature to drop below 56°F (field adjustable at panel).

13. A signal from the smoke detector at a unit's discharge shall deenergize the unit and close the discharge damper.

F. East MER Dual D.X. Units (DX-29-3, 29-4, 30-3, 30-4, 31-3, 31-4, 32-3, 32-4, 33-3, 33-4, 34-3, 34-4, 36-3, 36-4, 37-3, 37-4, 46-1, 46-2)

1. Each fan system will be started and stopped automatically on a weekly schedule routine from the BMS system or manually at the variable speed drive "hand" operation switch. When the units are off, all valves and dampers will be in their normally open or closed position. The VAV boxes will open fully.

2. Upon a start command from the DDC panel, a dry contact input will be sent to the inverter panel for each fan. When any fan starts, the associated damper(s) in the discharge duct will open and the system will come under control of its unitary controls. Additionally, when any fan starts, the associated variable speed drive will come under control, the minimum outdoor air damper will open, the return air dampers will open, and the VAV boxes will come under control of their local pneumatic thermostat.

3. Two pressure sensors, one located 2/3 down the longest north supply duct and one located 2/3 down the longest south supply duct will modulate the variable speed drive to maintain the lowest static pressure at setpoint. At startup, the inverter shall remain at minimum speed for (2) minutes (adjustable at the panel) before increasing and coming under control of static pressure.

4. The DDC system will monitor the following:

   a. North static pressure.
   b. South static pressure.
   c. Status of each AC unit and discharge damper(s).
   d. Supply air temperature of each unit.
   e. Machine room air temperature.
   f. Filter condition of each unit (V/A DPS across filter).
   g. Common alarm for each AC unit.
   h. Minimum O.A. damper position (pneumatic).
   i. Return air damper position (one point for all R.A. dampers) (pneumatic).
   j. High discharge static pressure.
   k. Purge ventilation damper position (pneumatic).
   l. Pressurize damper position (pneumatic).
   m. Smoke exhaust damper position (pneumatic).

5. The DDC system will provide an output signal to each unit temperature control panel to reset the discharge temperature setpoint.

6. Provide a high discharge static pressure switch which will shut down any fan if the discharge static pressure rises above 4" WC (adjustable). This shutdown shall be hardwired and shall sound an alarm at the DDC central monitoring console.

7. If any space temperature sensor on the floor senses 85°F (adjustable) or above during unoccupied hours, the A/C units in the west MER shall index on until space temperature drops below 80°F (adjustable). If west MER A/C units do not cause temperature to fall to 80°F within 1 hour (adjustable) the east MER A/C units shall be energized.

8. In the event of a fire alarm condition in the building, a purge or pressurization signal shall be transmitted to the BMS from the fire alarm system (for each floor). On receipt of a purge signal, the BMS system will close the minimum ventilation and return air dampers; open the purge ventilation damper; close a dry contact output to each unitary temperature control panel to allow 15% fan volume operation; close a dry contact output to the inverter panel signaling a 15% fan speed; open the floor smoke exhaust damper; and open all VAV boxes fully.

On receipt of a pressurization signal, the BMS system will close the minimum ventilation and return dampers; close a dry contact output to the inverter panel(s) to signal 100% fan speed; close a dry contact output to each unitary temperature control panel to allow 100% fan volume; ensure the floor smoke exhaust dampers are fully closed, open all VAV boxes fully; and open the O.A. purge ventilation and pressurization dampers fully.

9. Activation of the smoke detector in the A/C unit discharge shall deenergize the fan and close the discharge damper(s).

G. West MER Dual D.X. Units (DX-29-1, 29-2, 30-1, 30-2, 31-1, 31-2, 32-1, 32-2, 33-1, 33-2, 36-1, 36-2, 37-1, 37-2)

1. Each fan system will be started and stopped automatically on a weekly schedule routine from the BMS system or manually at the variable speed drive "hand" operation switch. When the units are off, all valves and dampers will be in their normally open or closed position. The VAV boxes will open fully.

2. Upon a start command from the DDC panel, a dry contact input will be sent to the inverter panel for each fan. When any fan starts, the associated damper(s) in the discharge duct will open and the system will come under control of its unitary controls. Additionally, when any fan starts, the associated variable speed drive will come under control, the minimum outdoor air damper will open, the return air dampers will open, and the VAV boxes will come under control of their local pneumatic thermostat.

3. For each unit a pressure sensor located two-thirds down the longest supply duct will modulate the variable speed drive to maintain its setpoint. At startup, the inverter shall remain at minimum speed for two (2) minutes (adjustable at panel) before coming under control of static pressure.

4. The DDC system will monitor the following:

   a. North static pressure.
   b. South static pressure.
   c. Status of each AC unit and discharge damper(s).
   d. Supply air temperature of each unit.
   e. Machine room air temperature.
   f. Filter condition of each unit (V/A DPS across filter).
   g. Common alarm for each AC unit.
   h. Minimum O.A. damper position (pneumatic).
   i. Return air damper position (one point for all R.A. dampers) (pneumatic).
   j. High discharge static pressure.

5. The DDC system will provide an output signal to each unit temperature control panel to reset the discharge temperature setpoint.

6. Provide a high discharge static pressure switch which will shut down any fan if the discharge static pressure rises above 4" WC (adjustable). This shutdown shall be hardwired and shall sound an alarm at the DDC central monitoring console.

7. If any space temperature sensor on the floor senses 85°F (adjustable) or above during unoccupied hours, the A/C units in the west MER shall index on until space temperature drops below 80°F (adjustable). If west MER A/C units do not cause temperature to fall to 80°F within 1 hour (adjustable) the east MER A/C units shall be energized.

8. Upon receipt of a fire alarm signal from the fire alarm system, the unit(s) on the floor in alarm shall shut down through the inverter control panel and all associated dampers shall close.

9. Activation of the smoke detector in the A/C unit discharge shall deenergize the fan and close the discharge damper.

H. West MER Single D.X. Units (AC-34-1, 38-1, 39-1, 40-1, 41-1, 42-1)

1. Each fan system will be started and stopped automatically on a weekly schedule routine from the BMS system or manually at the variable speed drive "hand" operation switch. When the units are off, all valves and dampers will be in their normally open or closed position. The VAV boxes will open fully.

2. Upon a start command from the DDC panel, a dry contact input will be bent to the inverter panel for each fan. When any fan starts, the associated damper in the discharge duct will open and the system will come under control of its unitary controls. Additionally, when any fan starts, the associated variable speed drive will come under control, the minimum outdoor air damper will open, the return air dampers will open, and the VAV boxes will come under control of their local pneumatic thermostat.

3. A pressure sensor located two-thirds down the longest supply duct will modulate the variable speed drive to maintain the its setpoint. At startup, the inverter shall remain at minimum speed for (2) minutes (adjustable at the panel) before coming under control of static pressure.

4. The DDC system will monitor the following:

   a. North static pressure.
   b. South static pressure.
   c. Status of each AC unit and discharge damper.

d. Supply air temperature of each unit.
e. Machine room air temperature.
f. filter condition of each unit (V/A DPS across filter).
g. Common alarm for each AC unit.
h. Minimum O.A. damper position (pneumatic).
i. Return air damper position (one point for all R.A. dampers) (pneumatic).
j. High discharge static pressure.

5. The DDC system will provide an output signal to each unit temperature control panel to reset the discharge temperature setpoint.

6. Provide a high discharge static pressure switch which will shut down any fan if the discharge static pressure rises above 4" WC (adjustable). This shutdown shall be hardwired and shall sound an alarm at the DDC central monitoring console.

7. If any space temperature sensor on the floor senses 85°F (adjustable) or above during unoccupied hours, the A/C units in the west MER shall index on until space temperature drops below 80°F (adjustable). If west MER A/C units do not cause temperature to fall to 80°F within 1 hour (adjustable) the east MER A/C units shall be energized.

8. Upon a receipt of a fire alarm signal from the fire alarm system, the unit on the floor in alarm shall shut down through the inverter control panel and all associated dampers shall close.

9. Activation of the smoke detector in the A/C unit discharge shall deenergize the fan and close the discharge damper(s).

I. West MER Single CHW Unit (AHU-43-8)

1. The supply fan will be started automatically on a weekly time schedule from the BMS or manually through the H-O-A switch at the motor starter.

2. When the unit if off, all valves and dampers will be in their normally open or closed position. The inlet vanes will be at minimum position and the VAV boxes will open fully.

3. When the supply fan is commanded to start (manually or via the BMS), the unit discharge, return air, and minimum outdoor air dampers will open, the controls will be energized, and the VAV boxes will come under control of their local pneumatic thermostat.

4. A static pressure sensor located 2/3 down the longest supply duct will modulate the variable inlet vane actuator to maintain the static pressure at setpoint. At start-up, the inlet vanes shall remain at minimum position for (2) minutes (adjustable at the panel) before increasing and coming under control of static pressure.

5. The DDC system will monitor the following:

   a. Supply static pressure.
   b. Status of AHU and all dampers.
   c. Supply air temperature.
   d. Return air temperature.
   e. Filter condition.
   f. Minimum outdoor air damper position (pneumatic).
   g. Return damper position (pneumatic).
   h. Discharge high static pressure.

6. Provide a high discharge static pressure switch which will shut down the fan if discharge static rises above 4" WC (adjustable). This shutdown shall be hardwired and sound an alarm at the central monitoring console.

7. If any space temperature sensor on the floor senses 85°F or above during unoccupied hours, the A/C unit shall index on until space temperature drops below 80°F.

8. Upon receipt of a fire alarm signal from the fire alarm system, the unit on the fire floor shall shut down and all associated dampers shall close.

9. Activation of the smoke detector in the A/C unit discharge shall deenergize the fan and close the discharge damper.

J. O.A./Smoke Exhaust System (AC-1, SX-47-2)

1. The outdoor air/smoke exhaust system is a dual function system consisting of two 100% outside air supply fans with variable pitch blades, a smoke exhaust fan, a series of isolation dampers, and two duct risers for dual functions.

2. When the system is off, all valves and dampers will be in their normally open or closed position. The variable pitch blades will be at minimum position.

3. The two supply fans (SF-1A and SF-1B) will be started manually at the H-O-A switch of their motor starter or automatically from the BMS based on a need for outside ventilation air from any one floor. This need will be determined through the BMS by monitoring the status of the minimum outside air dampers on the riser or a signal from the base building BMS (for non-SBI floors). The smoke exhaust fan and its normally open isolation dampers will remain off/closed during normal operation.

4. When the outside air supply fans are commanded to start (manually or from the BMS), the unit discharge damper, outside air damper, and

the normally closed minimum outdoor air riser isolation damper will open.

5. Two static pressure sensors located two-thirds of the way down each of the outside air supply risers will modulate the variable pitch blade actuators in tandem to maintain the lowest static pressure at setpoint. On startup, a (2) minute (adjustable at the panel) delay will keep the variable pitch blades at minimum position.

6. A high static pressure switch in the discharge and a low static pressure switch on the inlet of each fan will shut down the fan if discharge or inlet static pressures rise/fall above ±4" WC (adjustable). This shutdown shall be hardwired and will sound an alarm at the central monitoring console.

7. The DDC panel will modulate the CHW coil control valve to maintain a unit discharge temperature of 60°F (adjustable).

8. If the outside air temperature drops below 40°F (adjustable), the automatic CHW valves in the supply and return to the coil will be driven fully closed by the DDC panel. End switches on each valve will confirm that both valves are fully closed. If both valves do not fully close an alarm shall sound at the central console. Upon verification that both valves have closed (end switches), the DDC panel will then open the automatic drain valves on the coil to prevent a freeze condition.

   When the outdoor air temperature rises above 50°F (adjustable), the drain valves will close. If the drain valves do not fully close an alarm shall sound at the central console. Upon verification that the valves have closed (end switches), the DDC panel will reopen the CHW supply and return valves.

9. In the event of a fire alarm condition on Floors 24 through 48, the F.A. system will transmit a signal to the BMS system defining which floors must be purged and which must be pressurized. When this occurs, the BMS will close all of the minimum O.A. ventilation dampers on bother risers (1 & 2 - see HVAC-53) and close the outdoor air isolation damper between AC-1 and riser 1. The BMS will then open the purge ventilation damper on the fire floor and the pressurization damper(s) on the floor above and below. Additionally, the smoke exhaust damper(s) on the purge floor will open, the return air dampers will close, the smoke exhaust fan will be commanded "on" and SF-1B shall be commanded "on". Each double height trading floor will be considered as one floor for purge or pressurization.

   a. When the smoke exhaust fan is indexed on, the discharge and inlet dampers will be opened and the fan will be permitted to start via a damper end switch on the discharge damper. If the purge floor is a double height floor, the smoke exhaust fan

will be started on high speed. Additionally, the smoke exhaust fan in the west MER will energize, through its discharge damper end switch, and the discharge damper will open. For all other floors, the exhaust fan will be started at low speed. A high suction static pressure switch will shut the fan down and sound an alarm at the central monitoring console if it exceeds a suction pressure of -4" WC (adjustable).

b. When the outside air pressurization fan (SF-1B) is indexed on, the discharge and inlet dampers will be opened and the fan will be permitted to start via the damper end switches. The variable pitched blade will be commanded to wide open position.

c. See sequence of operation for East MER Dual DX Units and Trading Floor A/C Units for control of A/C units during purge and pressurization modes.

K. Auditorium Units (AHU-1-1 & RF-1-1 and AHU-38 & RF-38-1)

1. The supply and return fans will be started automatically on a daily time schedule from the BMS or manually through the Hand/Off/Auto switch at their motor starter.

2. When the unit is off, the N.C. outdoor air intake damper and N.O. spill air damper shall be closed, the N.C. return air damper shall be open, the N.C. throttling chilled water valve shall be closed, and the inlet vanes on the supply and return fans shall be at minimum flow position. The freezestat shall remain in operation.

3. When the supply fan is commanded to start (manually or via the BMS), the supply fan discharge dampers will open. The outdoor air damper, return air and spill air dampers will open, and the controls will be energized. The supply fan will then be started via discharge damper and outside air damper end switches. The software interlocked return fan shall start via return and spill air damper end switches.

4. A static pressure sensor located two-thirds down the longest supply duct will modulate the variable inlet vanes on the supply and return fan to maintain the desired supply fan static pressure setpoint. At startup, the inlet vanes shall remain at minimum position for two (2) minutes (adjustable at the panel) before increasing and coming under control of static pressure.

5. Provide a high discharge static pressure and low suction static pressure switch which will shut down the fan if discharge or suction static pressure rises above 4" WC (adjustable) or below -4" WC (adjustable), respectively. These shutdowns shall be hardwired and shall sound an alarm at the central console.

6. A low point freezestat located upstream of the cooling coil will shut the fans down (through hardwired interlock) and sound an alarm at the central console if it senses an air temperature less than 40°F (adjustable).

7. If a space temperature sensor on the floor senses 85°F (adjustable) or above during unoccupied hours, the A/C system shall energize and remain on until the space temperature drops below 80°F (adjustable).

8. Activation of the smoke detector in the A/C unit discharge shall deenergize the fan and close the discharge damper.

9. In the event of a fire condition, the fire alarm system will transmit a shutdown or exhaust signal to the BMS. Upon receipt of a shutdown signal, the supply and return fans will stop and all dampers will return to their normal position. Upon receipt of an exhaust signal, the DDC system will index the return fan on, shut the return dampers, and open the spill air dampers.

L. Electric Unit Heaters

1. When a wall mounted pneumatic thermostat senses a temperature below its setpoint, it will start the fan and sequentially start stages of electric heat to maintain its setpoint. A flow switch will prevent the heating stages from being activated unless air flow is present.

2. Unit heaters in the Fifth Floor Generator Room shall deenergize whenever a generator is activated.

M. Penthouse Mechanical Equipment Room Ventilation

1. The supply and exhaust fans shall be controlled automatically from the BMS through a weekly schedule and manually from the H.O.A. switch of their motor starter.

2. When the supply fan is de-energized, the exhaust fan shall be de-energized, the normally closed F.A.I. damper, N.C. discharge damper and N.O exhaust dampers shall be closed, the N.C. cooling coil control valve shall be closed and the heating coil shall be off. The freezestat shall remain in operation.

3. When the supply fan is energized, the exhaust fans shall be energized via BMS software interlock, and the F.A.I. damper, discharge damper and exhaust air damper shall open. The fans shall energize only upon verification that their respective dampers have opened.

4. Whenever the A/C unit discharge temperature drops below 55°F (adjustable) the BMS shall energize the heating coil to maintain a discharge temperature of 55°F.

5. Whenever the A/C unit discharge temperature exceeds 85°F (adjustable), the BMS shall open the cooling coil control valve and control the A/C unit discharge temperature to maintain a space temperature of 85°F (adjustable).

6. Activation of the low limit freeze protection thermostat located upstream of the cooling coil shall de-energize the supply and exhaust fans (via hardwired interlock) and signal and alarm at the central console.

7. Activation of the smoke detector located at the discharge of the supply unit shall de-energize the supply air fan and close the discharge damper.

N. Chilled & Condenser Water System

1. The system consists of (3) centrifugal water chillers, (5) cooling tower cells, (3) condenser water pumps, (3) chilled water pumps, (2) water to water heat exchangers, a differential pressure valve and miscellaneous isolation and diverting valves. In software, each chiller is directly assigned to a CHW pump and a CW pump. Each CW pump is directly assigned to two of the cooling tower cells. One chiller, one CHW pump, one cooing tower cell, and one CW pump will be standby. In the shutdown position all valves will be in their normally open or closed position, except for the cooling tower isolation valves which will all be closed.

2. The system is intended for 24-hour operation. When the system is indexed "on", the lead condenser water pump will be started, the isolation valves on its associated tower cells will open, and the chiller head pressure control valve will be indexed to bypass around the chiller. The system will operate in this mode for 5 minutes (adjustable) before the next sequence is enabled.

3. A temperature sensor in the common discharge line of the towers will modulate the two speed cooling tower fans in sequence to maintain the condenser water setpoint. The condenser water reset feature shall calculate and adjust the setpoint of the condenser water temperature to minimize the sum of compressor and cooling tower energy. The setpoint is dependent upon the outside air wet bulb temperature, the instantaneous percent of chiller plant capacity being used and the characteristics of the cooling tower. A tower fan cannot be started unless the tower is in operation and a (5) minute (adjustable) time delay will exist between fan starts or stops or changes in speed. Whenever possible the BMS shall not index the same fan sequentially.

4. A head pressure signal from the condenser pressure gauge in the lead chiller's control panel will control a 3-way bypass valve through the DDC to maintain a minimum condenser pressure as recommended by the chiller manufacturer.

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VIII. CODE ANALYSIS:

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APPLICABLE CODES

ANSI 17.1 - 1978, and Supplement A17.1a - 1979, and Supplement A17.1b - 1980	American National Standard Safety Code for Elevators, Dumbwaiters, Escalators and Moving Side Walks
A.S.M.E.	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017
OSHA	Occupational Safety and Health Administration Washington, DC
STATE ENERGY CONSERVATION CONSTRUCTION CODE	New York State Energy Office Division of Conservation Executive Department James L. La Rocca, Commissioner Agency Building #2 Empire State Plaza Albany, NY 12223
	Electrical Code of the City of New York
	National Electrical Code
REFERENCE CODES	National Board of Fire Underwriters American Insurance Association 85 John Street New York, NY
	Underwriters Laboratories, Inc. Fire Resistance Index Building Materials List 1285 Walt Whitman Road Melville, Long Island New York

18-23

APPLICABLE AUTHORITIES

ZONING DEPARTMENT:	City Planning Commission Two Lafayette Street New York, NY	UTILITIES:	Department of Sewers 40 Worth Street New York, NY
BUILDING DEPARTMENT:	The Port Authority of NY & NJ Planning Division World Trade Department Two World Trade Center, Suite 3001 New York, NY 10048		Con Edison 708 First Avenue New York, NY
HIGHWAY DEPARTMENT:	Department of Highways 40 Worth Street New York, NY		Department of Water Supply Municipal Building New York, NY
TRAFFIC DEPARTMENT:	Department of Traffic 40 Worth Street New York	ENVIRONMENTAL PROCTECTION AGENCY:	Department of Air Resources 120 Wall Street New York, NY
FIRE DEPARTMENT:	NYC Fire Department Municipal Building Brooklyn, NY	DEPARTMENT OF LABOR:	New York State Department of Labor Albany, NY

ELECTRICAL

Reference: Electrical Code of the City of New York (Title B, Chapter 30 of the Administrative Code)

ARTICLE	SECTION	SUBJECT	APPLICABLE TO	COMMENTS
1.		General Provisions & Definitions	All electrical work	
2.	Except B30-25.0	General Provisions for Wiring and Appliances		
4.		Service & Service Equipment (not over 600 volts)	Incoming electrical service equipment	Advisory Board approval required; Electrical Contract files for approvals.
5.	Except B30-46.0 B30-47.1 B30-49.1 B30-49.2 B30-49.3	Wire Methods	All electrical work	Wiring methods listed in excluded articles will not be used.
6.		Conductors	All electrical work	
7.		Boxes, Cabinet & Outlet at Terminal Fittings	All electrical work	
8.		Overcurrent Protection	All electrical work	
9.		Grounding	All electrical work	
10.		Rotating Machinery	All electrical work	

ELECTRICAL (Continued)

ARTICLE	SECTION	SUBJECT	APPLICABLE TO	COMMENTS
11.		Transformers & Capacitors	All electrical work	
12.		Switches	All electrical work	
13.		Panelboards	All electrical work	
14.		Lighting Fixtures	All electrical work	
15.		Lamps	All electrical work	
16.		Electrical Appliances	All electrical work	
18.		Storage Batteries	All electrical work	
20.		Wiring Design	All electrical work	
22.		Elevators	All electrical work	
23.		Hazardous Locations		Only those areas defined as hazardous areas.
26.		Motion Picture Projector Requirements		
27.		Theaters, Including Motion Picture Houses		
28.		Radio Equipment	Lightning protection for the microwave and satellite antennas.	
29.		Electrical Signs, Outline and Marquee Lighting		May be applicable for signs used in retail spaces.

ELECTRICAL (Continued)

ARTICLE	SECTION	SUBJECT	APPLICABLE TO	COMMENTS
32.		Emergency Lighting		Also C26-801.18 (now sec. 27-542) (Local Law 41-1978) Also NYC Building Code sections 27-382 (C26-605.2), 27-384 (C26-606.2) and 27-396 (C26-610.1)
33.		Circuits and Equipment Operating at no more than 600 volts between conductors	New work in the substation	
35.		Signal Systems		
Bulletin 102-1967		Rules and Regulations for Electric Services and Distribution Systems of over 250 volts and not more than 600 volts	Network compartments and distribution means.	
Bulletin 132-1976		Rules and Regulations Governing the Wiring for Remote Control and Data Link Installations		
Bulletin 126-1976 (Rev. 1983)		Relating to Wiring in Ducts, Plenums and Other Air Handling Spaces	Signal and communication cables.	
National Electrical Code Article 110		Requirements for Electrical Installation	Short circuit ratings, sections 110-9 and 110-10, and to Electric Room working space and access, sections 110-16 and 110-33.	

ELECTRICAL (Continued)

ARTICLE	SECTION	SUBJECT	APPLICABLE TO	COMMENTS
National Electrical Code Articles 725, 760, 770, 800		Fire Resistance of Wires and Cables	UL-listing requirements for low-voltage wires and cables.	

* Note: Code Analysis, Electrical. All requirements of the NYC Electrical Code, National Electrical Code and NYC Building Code must be complied with, whether or not they are exemplified in this Code Analysis.

18-33

FIRE ALARM, DETECTION AND EXTINGUISHING EQUIPMENT

CODE REFERENCE	SUBJECT	REQUIREMENTS
1702.1	Fire Standpipe: When Required	In all buildings exceeding six (6) stories or 75 feet in height.
1702.4	Number of Standpipe Riser Required	The number shall be such that every point of every floor can be reached by a 20' stream from a nozzle attached to 125' of hose connected to a riser valve.
1702.5	Location of Risers	In stairways or as close thereto as possible, signs in stairs to indicate location of auxiliary racks. The need for auxiliary hose coverage could be appealed as unnecessary in a sprinklered building.
RS 17-2.1 (c) 4	Location of Riser Control Valves	Where riser control or section valves are located outside of stair enclosures, they must be remotely controlled motorized valves.
1702.6	Omission of Standpipe Service	Outlets may be omitted at 1st floor or basement areas separated from Lobby or stairs to upper floors.
1702.7	Size of Standpipe Riser	6".
1702.9	Siamese Connections	One (1) per 300' of exterior building wall; distance between not to exceed 300'. One on each parallel public street.

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FIRE ALARM, DETECTION AND EXTINGUISHING EQUIPMENT (Continued)

CODE REFERENCE	SUBJECT	REQUIREMENTS
1702.10	Cross Connections	Standpipes to be cross connected at either basement level or at lowest level of each zone (for pressure regulation).
1702.11 (a)	Hose Outlet Valves	Provide at every riser at each floor between 5' and 6' above floor.
1702.11 (c)	Size, Type, Quantity of Hose	Hose shall be provided on hose racks at each hose station.
1702.14	Water Supply for Standpipe Systems	Every hose outlet must be supplied at all times from a combination of two or more of the following: gravity tank(s), pressure tank(s), city water main, private water main, automatic fire pump. Standpipe risers may be used to supply sprinklers.
1702.15	Fire Pumps	In buildings over 300' high, the primary water supply to the standpipe system shall be supplemented by a manually operated fire pump.
1702.16 (b)	Water Supply to Standpipe	Two (2) 6" services required from separate streets.
1703.1	Required Sprinklers	Automatic sprinkler system required in Occupancy Group E, 100' or more in height, having air conditioning or mechanical ventilation systems that serve more than the floor on which the equipment is located. The sprinkler system may be connected to the fire standpipe system.

FIRE ALARM, DETECTION AND EXTINGUISHING EQUIPMENT (Continued)

CODE REFERENCE	SUBJECT	REQUIREMENTS
1703.1 (1)	Omission of Sprinklers	Sprinklers may be omitted in toilets, shower rooms, stairs and mechanical and electrical equipment rooms. Sprinklers compliance with Local Law 5 requires the building to be sprinklered "throughout", which supersedes this reference. Directive 13 of 75 permits substitution of heat and smoke detectors in mechanical and electrical equipment rooms.
1703.9 (g)	Sources of Water Supply to Sprinkler Systems	Standpipe risers may be used to supply water to sprinklers in buildings classified as Occupancy Group E, 100' or more in height.
RS 17-2 1-7.6	Classification of Occupancies	E Occupancy: light hazard B, C, D, F (including food serivce): ordinary hazard.
RS 17-2 2-5.4	Pumps	A pump can be used to boost the pressure from the tank but it requires service from inlet side of switchgear or connection to emergency generator.
RS 17-2 4-4.17.4	Vaults	Safe deposit or other vaults or fire resistive construction will not require sprinkler protection when used for the storage of records, files and other documents when stored in metal cabinets.
1704.0	Interior Fire Alarm and Signal System	
1704.1 (a) (9)	Where Required	Building classified in Occupancy Group E.

FIRE ALARM, DETECTION AND EXTINGUISHING EQUIPMENT (Continued)

CODE REFERENCE	SUBJECT	REQUIREMENTS
1704.5 (f)	System Requirements	Buildings classified in Occupancy Group E, 100' or more in height, and existing office buildings 100' or more in height except as provided in subdivision (g) of this section shall be provided with a class E fire alarm signal system as follows:

(1) It shall be special electrically supervised approved direct wire, radio or combination thereof fire alarm signal consisting of an interior fire alarm and voice communicating system so arranged that the operation of any station will identify its location at the fire command station as required by Section C26-1704.8, at the mechanical control center and at the regularly assigned location of the fire safety director. This identification signal shall be accomplished by means of an information display system which shall be manually resetable from the fire command station only.

(2) The nomenclature used for the location identification system shall be subject to the approval of the fire commissioner.

(3) In addition to the visual devices redquired above, audible signal devices indicating operation of the fire alarm signal system shall be provided at the fire command station, mechanical control center and the regular assigned location of the fire safety director. Provisions shall be made for silencing the audible signal and transferring this signal to lamp indication.

(4) Operation of a manual station shall automatically transmit a fire alarm signal to the fire department via a central office of an operating company franchised by the Board of Estimate, and cause the fire alarm signal system to sound continuously throughout the floor where activated and the floor above.

FIRE ALARM, DETECTION AND EXTINGUISHING EQUIPMENT (Continued)

CODE REFERENCE	SUBJECT	REQUIREMENTS
1704.5 (f)		(5) The fire alarm signal may be sounded over loudspeakers as provided in reference standard RS 17-3A so located that their operation will be heard clearly above any ambient noise, and shall be controlled from the fire command station in such a manner that the fire alarm signal can be sounded on the individual floors or throughout the building. (6) Provision shall be made whereby the fire command station may permit the floor station to make announcements over the loudspeaker system. (7) The loudspeaker amplifier system shall be so designed and installed that approximately fifty (50) percent of the system shall remain operable for the transmission and audibility of signals and intelligibility of voice communication over the loudspeaker system throughout the building, in the event the other fifty (50) percent becomes inoperable. The electrical supply for this fire alarm system, including the amplifiers, shall be in accordance with applicable laws, rules and regulations. (8) Smoke detectors at each elevator landing. (9) In buildings which are approved with air-conditioning and/or mechanical ventilation systems that serve more than that floor on which the equipment is located, the activation of any of the detectors installed in such air conditioning and/or mechanical ventilation systems in accordance with the provisions of RS 13-1 of the reference standards shall: (a) cause the fire alarm signal system to sound continuously throughout the floor were activated and the floor above.

FIRE ALARM, DETECTION AND EXTINGUISHING EQUIPMENT (Continued)

CODE REFERENCE	SUBJECT	REQUIREMENTS
1704.5 (f)		(b) cause a fire alarm signal to be transmitted to the fire department via a central station of a franchised operating company.
		(c) cause the fire alarm signal system to sound at the fire command station required by Section C26-1704.8 and to sound an alarm in the mechanical control center and at the regularly assigned location of the fire safety director, and to operate an information display system as provided in paragraph (1) above.
		(d) stop the air supply into and the air return from the floor where activated by actuation of approved remote control reversable fire shutters or be automatically shutting down the air supply fans and the air return fans of the floor where activated, notwithstanding the provisions of the sections 1001 through 1005 of RS 13-1 of the reference standards relating to air supply and air return controls in case of fire.
		(e) cause the activation of the air exhaust fans and dampers in smoke shafts and/or the pressurizing fans in stair enclosures.

FIRE ALARM, DETECTION AND EXTINGUISHING EQUIPMENT (Continued)

CODE REFERENCE	SUBJECT	REQUIREMENTS
1704.5 (f)		(10) A building equipped throughout with an automatic sprinkler system including a water flow alarm shall be exempt from the installation of any detectors pursuant to paragraph (8) of this subdivision and section 1006 of reference standard RS 13-1 provided the activation of the sprinkler water flow alarm shall have the same effect as specified in subparagraphs (a) through (e) of paragraph (9) of this subdivision and in addition, cause the overriding of the programming for car stops of all automatic elevators serving the floor where activated and bring them non-stop to the floor levels designated by section 210.13 (c) of reference standard RS 18-1.
1704.6 (a)	Location of Sending Stations	At least one per floor. at all natural paths of egress. Locate so that no point on floor is greater than 150' away. Install so that handle is approximately 5'3" above floor. Height above floor for sending stations to be four (4) feet, per current code, Section 27-973 (a) (2).
1704.6 (b)	Location of Sounding Devices	Make center line 8' above floor or 6" below ceiling.
1704.6 (c)	Location of Instructions	Instruction card, framed under glass, required at each fire alarm station.
1704.7	Standpipe Fireline Telephone and Signalling System	Required for buildings greater than 300' high.

FIRE ALARM, DETECTION AND EXTINGUISHING EQUIPMENT (Continued)

CODE REFERENCE	SUBJECT	REQUIREMENTS
1704.8	Communication System and Fire Command Station	Buildings classified in Occupancy Group E, 75' or more in height, and existing office buildings 100' or more in height, shall be provided with the following:

(a) a communication system acceptable to the commissioner consisting of:

(1) loudspeakers on each floor of the building, in each elevator and each stair enclosure, which shall be capable of being operated from the fire command station.

(2) a two-way voice communication capability between the fire command station and the following locations:

a. a designated floor warden station on each floor
b. mechanical control center
c. elevators
d. air-handling control rooms
e. elevator machine rooms

(b) The fire comand station shall be located in the lobby of the building on the entrance floor as part of the elevator control panel or immediately adjacent thereto. Such command station shall be adequately illuminated and shall contain the folowing:

(1) the loudspeaker and communication capability described in (a) above.

(2) the audible alarm signal required in section C26-1704.5 (f) and section C26-1704.5 (g).

FIRE ALARM, DETECTION AND EXTINGUISHING EQUIPMENT (Continued)

CODE REFERENCE	SUBJECT	REQUIREMENTS
1704.8		(3) manually reset information display system to indicate the floor where the alarm was activated.
		(4) means to control the sounding devices on any floor or throughout the building.
		(5) means to manually transmit a fire alarm to the fire department via a central station of a franchised operating company.
		(6) means for silencing the audible alarm signals when he loudspeakers are in use and for activating the audible alarm systems automatically when use of the loudspeakers is terminated. Switches used for this purpose shall be of the self-restoring type.
		(7) display lamps to include on/off condition of air-handling systems unless such lamps are provided in the mechanical control center.
		(8) means for testing the display lamps, local alarms and the connection to the central station of a franchised operating company.
27-971 (g) (formerly under C26-1704.4) RS 17-3A	Regarding Class E Fire Alarm Signal Systems	
27-969 (formerly C26-1704.2)	Regarding Approvals and Labeling Requirements for Fire Alarm Equipment.	

PLUMBING

CODE REFERENCE	SUBJECT	REQUIREMENTS
RS 16-5	Minimum Number of Plumbing Fixtures Required	Population determined by allowing 125 sq. ft. of floor area per person, or actual population.
P104.1 (c)	Facilities for Physically Handicapped	One (1) water closet per 300 persons of each sex, with a minimum stall size of 3'0" X 5'6"; seat 20" above floor. Must comply with A' A117-1986.
RS 16 Table RS 16-5	Drinking Fountains	One (1) for 75 persons.
RS 16 P107.5 (d)	Water Pressure	Pressure reducing valves required where pressures exceed 85 PSIG.
P108.8	Minimum Pitch of Piping	Pitch of horizontal drainage piping as follows: 2" or less - 1/4 in./ft. Over 2" - 1/8 in./ft. To accommodate kitchen fixtures and future fixtures at these slopes, four (4) wet columns should be provided per tower. In addition, the core toilet stacks should have provision for future connections.
P110.6	Controlled Flow Storm Water System	The Sewer department now generally restricts acceptable flow to the sewer to a rate which requires on-site retention; roof must support 15 lbs./sq. ft.; scuppers required.